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ABSTRACT

This report discusses the Columbia Classroom Environments Project Autonomy in Learning An Exploration of Pupils' and Teachers Roles in Different Classroom Environments to develop Criteria and Procedures for Evaluation in Project Follow Through. The report begins with a discussion of a set of matrices which combine all of the behavior code categories which have been used in the research up to the time of this report. The construction of the matrices involved much working back and forth between the matrices and the pilot study data. This process and the evaluation of the matrices are on-going. The report first discusses the general structure of behavior in learning environments, suggesting some of the basic assumptions and hypotheses of the set of matrices and illustrating for each of the predicted locations of the four types of classrooms which it was planned to observe in spring 1971 in terms of the pilot observations made in fall 1970. Next, some of the argument up to this point as it bears on the definition and construct validity of autonomy is summarized. Third, the intra-individual consistency of children's behavior will be related to their inter-individual consistency, in terms of the pilot observations. Finally, the decisions which were made about the conduct of the spring observations are discussed. (Author/JM)

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Institute for Pedagogical Studies

Teachers College, Columbia University

New York, New York 10027

Autonomy in Learning: An Exploration of Pupils' and Teachers' Roles in Different Classroom Environments to Develop Criteria and Procedures for Evaluation in Project Follow Through

The Columbia Classroom Environments Project

SECOND PROGRESS REPORT

February 1971

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Joseph C. Grannis
Project Director

UD 015 999

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3. Significant Findings and Events

We think we can describe a fundamental structure of behavior in learning environments. The discovery resulted from our attempts to find theoretical and empirical connections among the various categories that we have been using to code behavior settings and streams, and thus the structure is linked into our coding. It has strong implications for how different categories can be dimensionalized and for the choice of dimensions we might use to answer different questions about behavior in learning environments. We have acted on these implications in a first, crude analysis of some of the pilot study data, and are able to report that the data lends credence to the structure. We can make no claims whatsoever for the adequacy of this first sample. To put it differently, we are not yet in a position to test a null hypothesis. However, the data that we do have tends to fall in predicted positions within a set of matrices that we have constructed, or, where it does not, can be intuitively understood in terms of interactions among the factors represented in the matrices. For the present, it is like looking for expected particles in a cloud chamber, and it has been as exciting as that. For the future, we are confident of a number of predictions that we can make, and very curious about others that can now be formulated more precisely than we dared hope three months ago.

Let us first state briefly the problems that we had to come to grips with following the December Conference, problems that had been vaguely apprehended by us before the conference, but that were sharpened for us in the exchanges at this time.

(1) First and foremost, it was necessary to define "autonomy" more functionally, or to abandon the construct altogether. We were loath to do

the latter, because the term seemed to be central to a number of aspects of the conduct of learning that we were interested in, and in fact has continually been alerting us to new aspects of the problem as we have run across the term in others' usage of it, from Durkheim (1956) to Maccoby and Zellner (1970). The requirements of a revised definition were most clearly revealed to us in Louis Smith's question at the conference, were we going to come down on the side of a "trait" or a "field" definition of autonomy? The liabilities of a trait definition were obvious to all, and we became aware of how much trait meaning might have been imported into our thinking by the term "autonomy" itself, given its use in this way by so many others. We did not want to rule out a trait meaning altogether, but we did need to know its boundaries within the general problem. The difficulties of a strictly field definition, on the other hand, were those recognized when Project Follow Through first asked us how we could measure a transfer of autonomy from the settings of the Follow Through classrooms to new settings, the fourth grade classrooms the children would move onto, or, as it turned out, settings we would propose to design ourselves to observe children under standardized conditions while they were still in the third grade. A field definition would have great bearing on the autonomy we might or might not observe in the children's present classrooms, and our interest in this was not diminished. A role definition, however, would go beyond this to generalized expectations and performances that might be learned in given settings and tranferred to new settings. This brought us back to the central propositions of the original proposal for our research, but with a clearer realization that we must identify the variables of learning environments that the children's roles would relate to.

(2) The December confusion underscored the necessity of our establishing the validity of the construct "autonomy", as stipulated for the first several phases of the project in the September 21 amendment to the project proposal. However, the very manner in which the stipulation was couched and agreed to at that time, in terms, that is, of our distinguishing between autonomy and creativity or similar constructs, shows how much all parties to the agreement at that time were influenced by a trait conception of autonomy. Some progress with the problem was made in December when Louis Smith and Paul Gump suggested that we apply our criteria for autonomy to show differences in children's behavior in settings for which the sponsors themselves claimed different degrees of autonomy. Still, the validity of the sponsors' uses of the construct would still be open to question.

(3) Our examining the intra-individual consistency of children's autonomous or nonautonomous behavior was also agreed to in the September 21 amendment, but likewise, as we began to see in December, was confounded by a trait conception of autonomy. We were able to reformulate the problem as follows: Given certain consistencies among children that could be attributed to the properties of behavior in different settings, and the possibility that these would result in the children's developing different role expectations and capabilities, were there also consistent differences between children within settings, (or, more powerfully, within subsettings,) differences that among other things, could be attributed to the children's varying dispositions or abilities to relate to the setting properties? These latter differences between children might, to the extent that they represented intra-individual consistencies, be traced in part to differences in the children's prior school or out-of-school experience. Beyond this, they might further be traced to what are appropriately thought of as in-

dividual children's traits, which schools might be expected to take into account, but which they would not be likely to alter in any substantial way. (On this last question, cf. Grimes .)

(4) Related to all of the above was a general question posed by Gump, what dimensions were involved in the behavior stream codes we were developing, and what new categories might result from our differentiating more finely along each of these dimensions? Following the conference, it occured to us to apply the same question to the categories of Gump's (1967) setting analysis, as modified by us. This seemed to be the most immediately operational of all the questions we faced, and so we started here in early January. We took subsets of these categories, Gump's and our own, and tried to arrange them in different matrices, looking at first just for the empty cells that might represent conditions that Gump had not observed in the classrooms he described, or empty spaces along our own behavior stream dimensions. This led to our rotating and flipping the various individual matrices to search for possible relationships among the matrices. Very swiftly this led to a realization that the two dimensions of each separate matrix could be interpreted in relation to two general dimensions, and that these in turn generated other matrices, some of which related to still other categories in our coding systems, and some of which suggested new categories. Our attempt through all of this to relate autonomy to each of the dimensions was very important both for our formulation of the dimensions and our definition of autonomy itself. What emerged, however, was a general structure that lends itself to one's asking many questions about behavior in learning environments, and to a variety of hypotheses and empirical tests of the hypotheses. Indeed, the construction of the matrices was not just a theoretical exercise, but involved much working back and forth between the matrices and our pilot study data. This process, and the

evolution of the matrices, will continue, and has only been interrupted, at the last possible moment, in order to report on our progress at this time. It will be obvious from inspection that a number of the matrices require reformulation and elaboration, and that all of them present difficult scaling problems. We will be attending to these questions in the ensuing phases of the project. Even given these constraints, however, we could comment on the matrices at much greater length now than time allows. This report will have to be confined to those comments on the matrices that clarify the approach we are taking to several questions raised above and to the further conduct of the project in its next phase.

We will first discuss the general structure of behavior in learning environments, suggesting some of the basic assumptions and hypotheses of our set of matrices, and illustrating for each the predicted locations of the four types of classrooms we will be observing this spring in terms of the pilot observations made this fall. Next we will summarize some of the argument up to this point as it bears on the definition and construct validity of autonomy. Third, the intra-individual consistency of children's behavior will be related to their inter-individual consistency, in terms of our pilot observations. Finally, the decisions we have made about the conduct of the spring observations will be discussed in terms of all the foregoing considerations.

To spare our continually having to repeat our apologies for the limitations of the fall data, let us recognize these now. It will be obvious from what follows that we will want to use a considerably revised set of categories for the setting observations in the spring, though our debt to Gump is now much greater than when we started. We have coded systematically

only a fraction of the behavior stream observations, partly for reasons of time, partly because the codes for this have been evolving in the past few weeks, and because the observation records themselves seem very inadequate to us from our present perspective. Our recent coding has sensitized us to phenomena that we need to be more alert to in these observations, and we are about to retrain ourselves accordingly. A number of the codes call for a more exact recording of time than was possible for us in the fall, and we have commissioned a student at Teachers College to invent for us an oscillator attachment that will record a beep on our Cassette sound tapes at one minute intervals during the behavior stream observations, without the beep's being audible in the classroom. This device will be available to us by February 8, when we will commence the spring observations. The quality of our fall videotapes varies from excellent to poor, particularly their sound, but beyond that, we did not really know what we wanted to code from the videotapes before the general reformulation of the problem that we have recently been engaged in. We are more certain now that the observation records to be produced in the spring will in themselves constitute a valuable data bank for the research of other investigators to whom they become available, and especially so in conjunction with our matrices, which generate many more questions and hypotheses than we will be able to test in the span of this project.

Again, therefore, the data that is cited in what follows is meant to illustrate, rather than to test, our propositions.

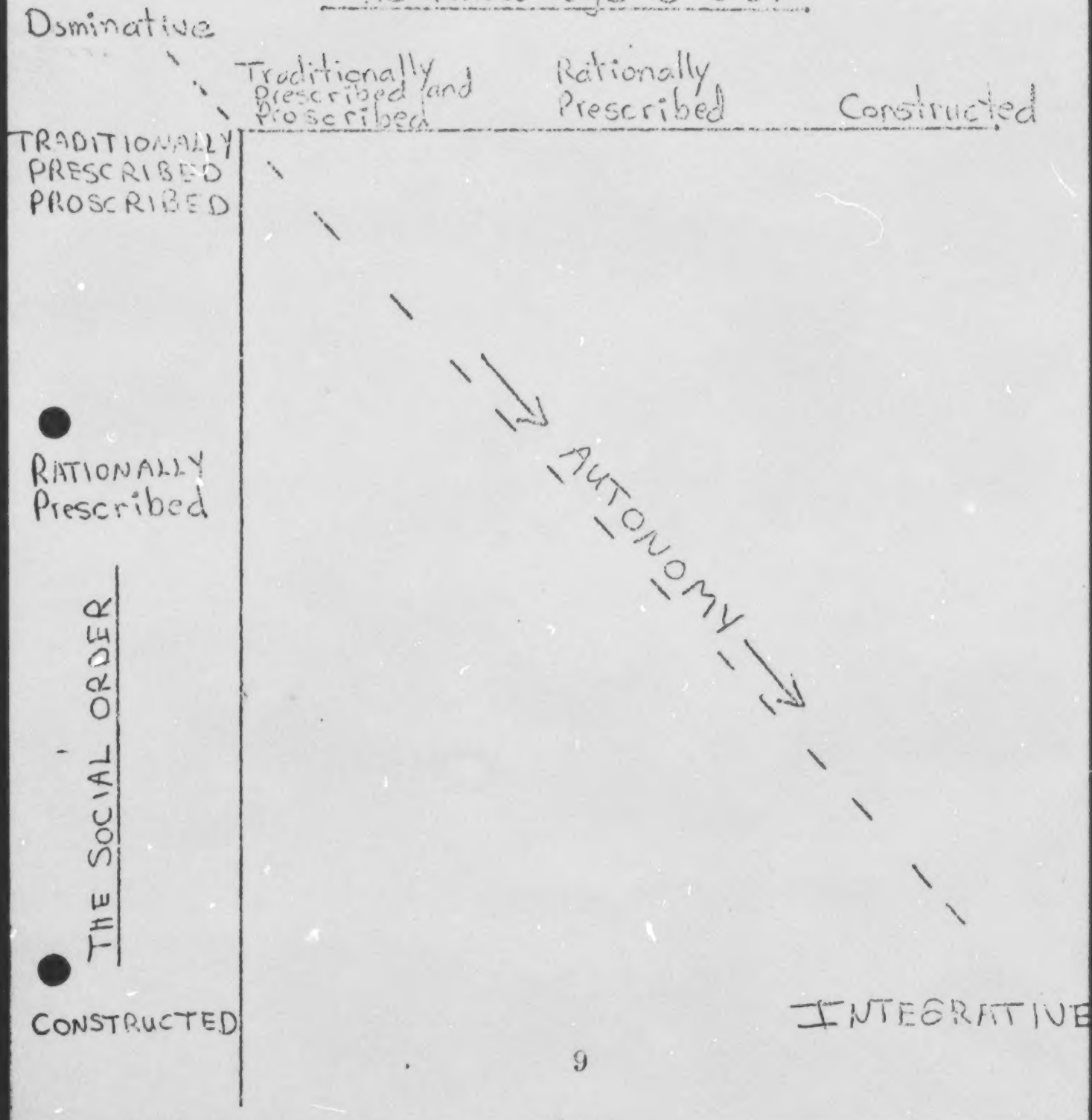
The structure of behavior in learning environments.

The complete set of 17 matrices developed to date follows this insert and is discussed in the ensuing pages of the report. Following the complete set we have included 9 of the matrices which have entered on them data from our analysis of portions of the behavior stream observations on individual children in the observed classrooms. The symbols T_1, EB_1, B_1, BS_1, etc. that are used on a number of the matrices to identify specific observations are explicated with reference to Matrix #4 on pages 36-42.

Four crucial tables that show the all day behavior setting data collected in the four classrooms are included and discussed in the section headed The definition and validity of the construct autonomy, pages 57-68

THE STRUCTURE OF LEARNING ENVIRONMENTS AND BEHAVIOR

The Knowledge Order



Preponderance of Work or Play Forms of Learning in Relation to Pacing

WORK OR PLAY

SOURCE OF PACING	WORK DOMINANT	WORK AND PLAY	PLAY AND WORK	PLAY DOMINANT
External				✓
Combination				
Self				
Mutual				

OCCUPANCY TIME FOR INDIVIDUAL PUPILS

(3)

Evidence Teacher Requires of Pupil's Learning or Productivity in Relation to Pacing

EVIDENCE REQUIRED OF INDIVIDUAL PUPIL'S LEARNING OR PRODUCTIVITY

Source of Pacing	HIGH CONTINUOUS	MODERATE REGULAR	LOW IRREGULAR
External			
Combination			
Self			
Mutual			

FREQUENCY OR PUPIL OCCUPANCY TIME

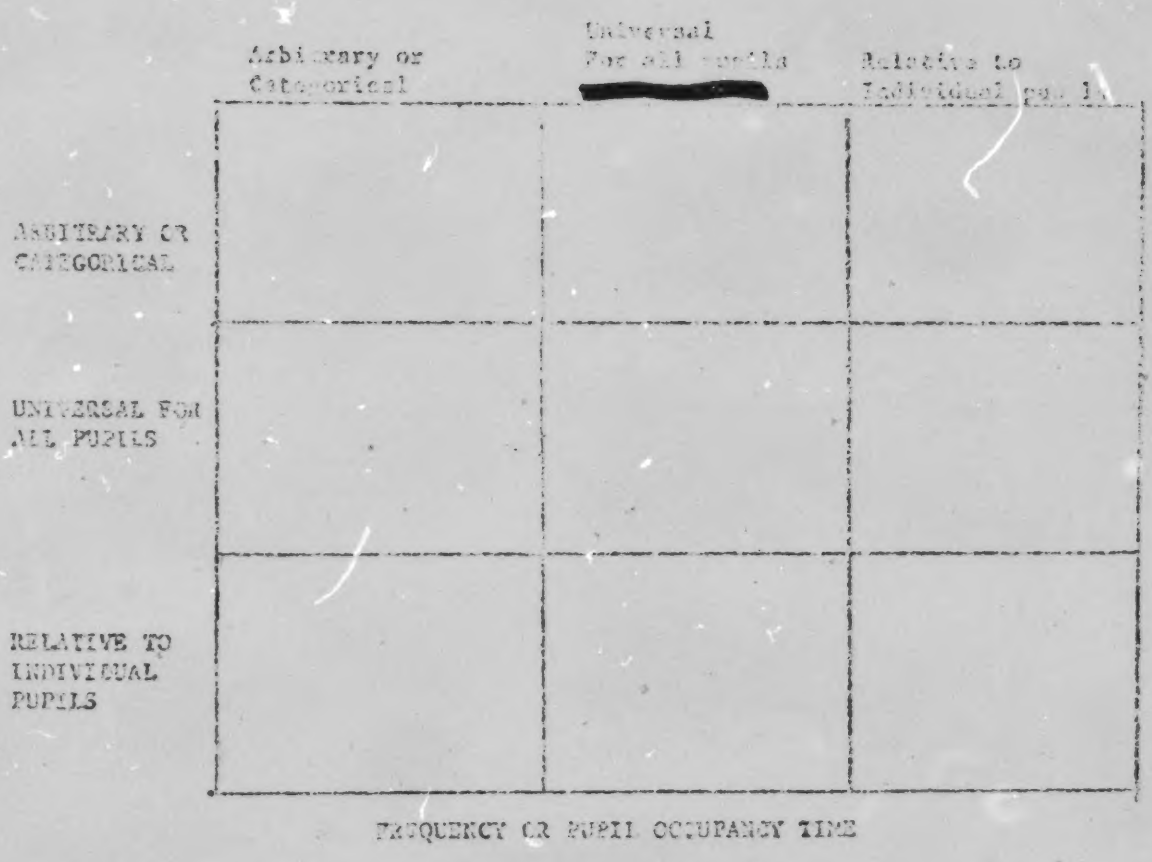
TASK MAINTAINING CONTINUITY AND SOURCE OF FEEDBACK

[illegible] (SOLUTIONS)

SOURCE OF FEEDBACK FOR STEPS TAKEN	One step or repetitive steps, no perceived goal beyond step itself	One route several steps to single goal	Several routes to single goal	Many routes to many goals
None Available				
Teacher				
Presented Rule or Sign				
Consulted Rule or sign or Teacher				
Didactically Designed Object				
Functional Object				
Functional Situation				
Consulted Above				

FREQUENCY OR PUPIL OCCUPANCY TIME

(Discipline, Conduct)
Social Order Standards



MAJOR STRUCTURING AND MINOR STRUCTURING OF EPISODES: DECISIONS

WHO DECIDES:

MINOR STRUCTURING - SUBEPISODE MAINTENANCE

	TEACHER	COORDINATION	PUPIL	MUTUAL
T				
C				
P				
M				

FREQUENCY OR PUPIL OCCUPANCY TIME

WHO DECIDES: MAJOR STRUCTURING — EPISODE INITIATION AND TERMINATION

MEDIUM OR MATERIALS AND MODE OF PUPIL ACTIVITY

INTEGRATION/RELATIONAL COMPLEXITY OF ADJACENT ELEMENTS: COGNITION REQUIREMENTS AND POSSIBILITIES

Physical Movement Required + Possible

	RANDOM	SEQUENCED	PATTERNED	NATURAL OR REAL
Audio, Visual, Oral				
Written				
Concrete manipulative				
Large Muscle				

FREQUENCY OR PUPIL OCCUPANCY TIME

(3)

MOTIVATION

PREDOMINANT FOR LEARNING

	(FEAR OF) PUNISHMENT	REMOVAL OF REWARD	EXTRINSIC REWARD	INTRINSIC REWARD
FEAR OF PUNISHMENT				
REMOVAL OF REWARD				
EXTRINSIC REWARD				
INTRINSIC REWARD				

FREQUENCY OR PUPIL OCCUPANCY TIME

Predominant for Social Conduct

(9)

Explicitness of Pedagogical Instructions

QUALITY OF LEARNING AND
EFFECTIVENESS OF INSTRUCTIONAL INSTRUCTION

	ACQUISITION OF FACTS	SKILLS	APPLICATION TESTING OF PRINCIPLE LEARNING NEW RULE CLASSIFICATION DEFINITION, INTERPRETATION	INSIGHT NEW INTEGRATION EXPLANATION CONSTRUCTION IMAGINATION
DETAILED STEPS INSTRUCTIONS				
PROBLEM GIVEN WITH GENERAL PROCEDURE				
ONLY PROBLEM GIVEN (ESSENTIALS)				
MATERIALS				

FREQUENCY OR PUPIL OCCUPANCY TIME

TEACHER - PUPIL LEARNING TASK INTERACTION AND GROUP QUALITY

(10)

TEACHER-PUPIL LEARNING TASK INTERACTION

GROUP QUALITY

	HIGH	MEDIUM	LOW
CLASS			
SECTION			
PARTITION			
CLUSTER			
CONTAIN			
TUTORIAL			
$GROUP_d$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

PUPIL - PUPIL LEARNING TASK INTERACTION
AND GROUP QUALITY

Pupil-pupil learning task interaction

Group quality

	LOW	MEDIUM	HIGH
CLASS			
SECTION			
PARTITION			
CLUSTER			
CONTAIN			
TUTORIAL			
$GROUP_D$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

Teacher-pupil personal-social interacti

CLASS			
SECTION			
PARTITION			
CLUSTER			
CONTAIN			
TUTORIAL			
$GROUP_d$			
$GROUP_i$			
(DURATION)			

Group quality

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

PUPIL - PUPIL PERSONAL-SOCIAL INTERACTION AND GROUP QUALITY

Pupil-pupil personal-social interaction

Group Quality	LOW	MEDIUM	HIGH
CLASS			
SECTION			
PARTITION			
CLUSTER			
CONTAIN			
TUTORIAL			
$GROUP_d$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

RELATIONSHIP OF STUDENT - PUPIL INTERACTIONS
AND GROUP QUALITY

(14)

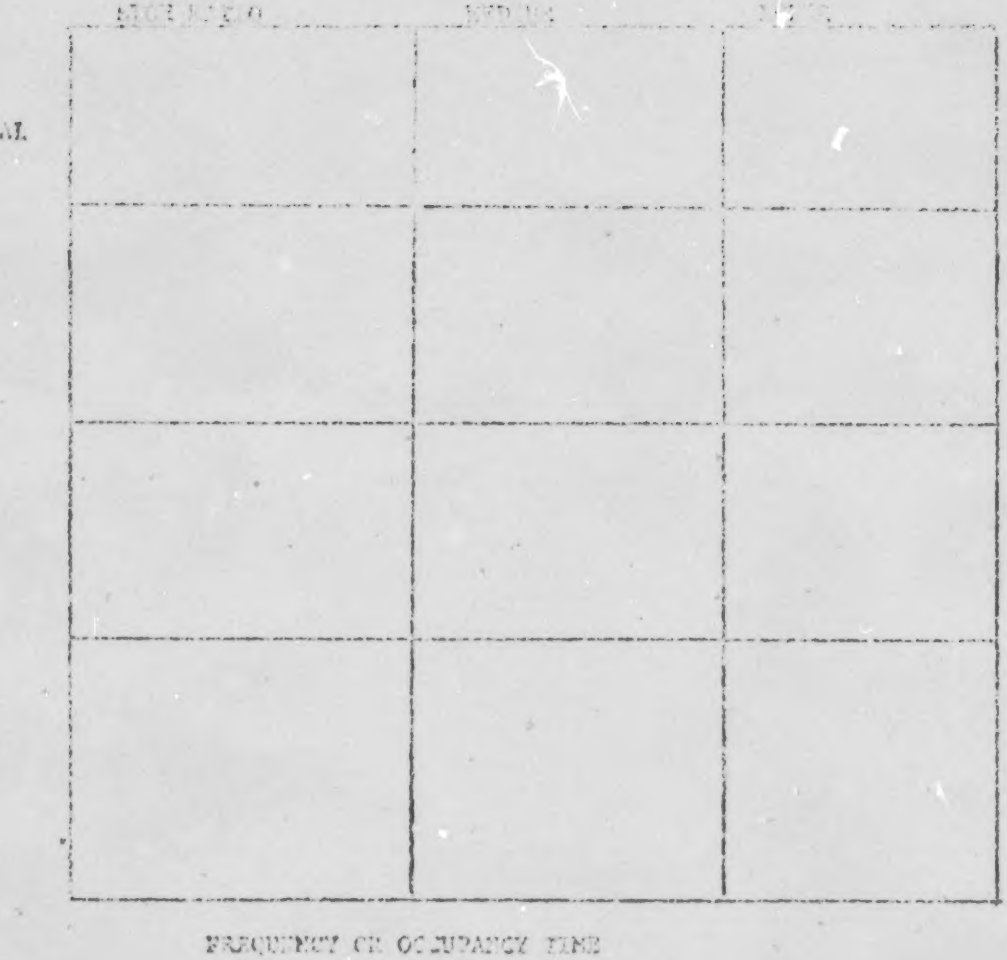
Pupil Initiation of teacher-pupil interaction

Group quality

	LOW	MEDIUM	HIGH
CHAOS			
SECTION			
PARTITION			
CLUSTER			
CONTAIN			
TUTORIAL			
$GROUP_d$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OF PUPIL OCCUPANCY TIME FOR INDIVIDUAL PUPILS

Source of Pacing



FREQUENCY OF OCCUPANCY TIME

(16)

LEVEL OF ON-TASK AND OFF-TASK BEHAVIOR
OBSERVED IN SUBSETTINGS AND SETTINGS

CHARACTERISTICS OF
SETTING OBSERVED

General Characteristics of setting in which pupils have been educated.

	ORIGINALLY PRESCRIBED OR PROSCRIBED	RATIONALLY PRESCRIBED	CONSTRUCTED
TPP			
RP			
C			

CELL ENTRIES:

Pupil on-task and off-task behavior in subsetting observed

TASK CRITERIA AND JUDGES

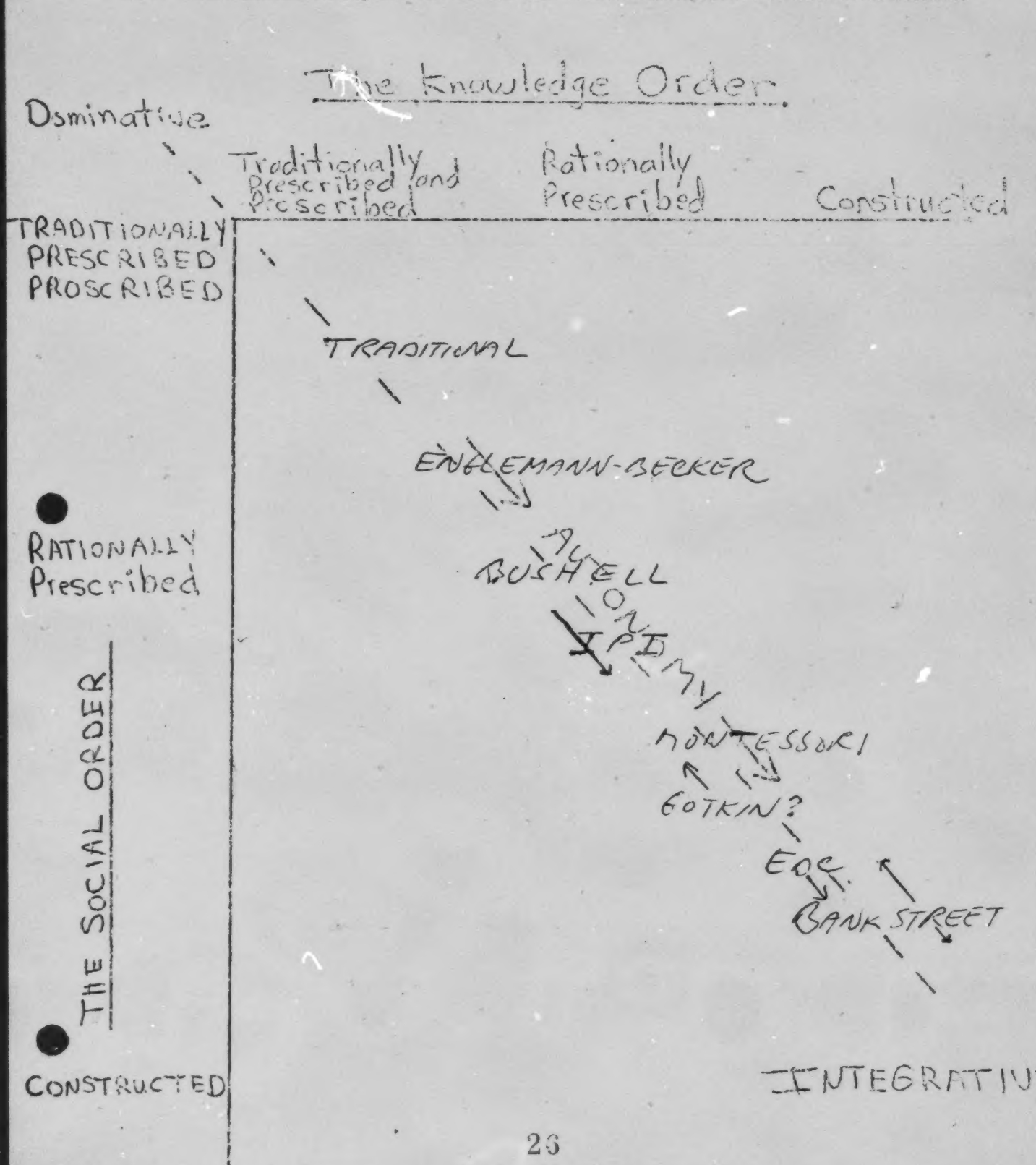
CONVERGENCE - DIVERGENCE
NUMBER OF SOLUTIONS POSSIBLE FOR TASK

Judge or Arbiter of Task Criteria: Who Applies

	ONE	SEVERAL	MANY
TEACHER			
OTHER PUPILS AS AUTHORITY			
SELF			
SELF WITH OTHER PUPIL(S) AS PEERS OR TEACHER AS PEER			

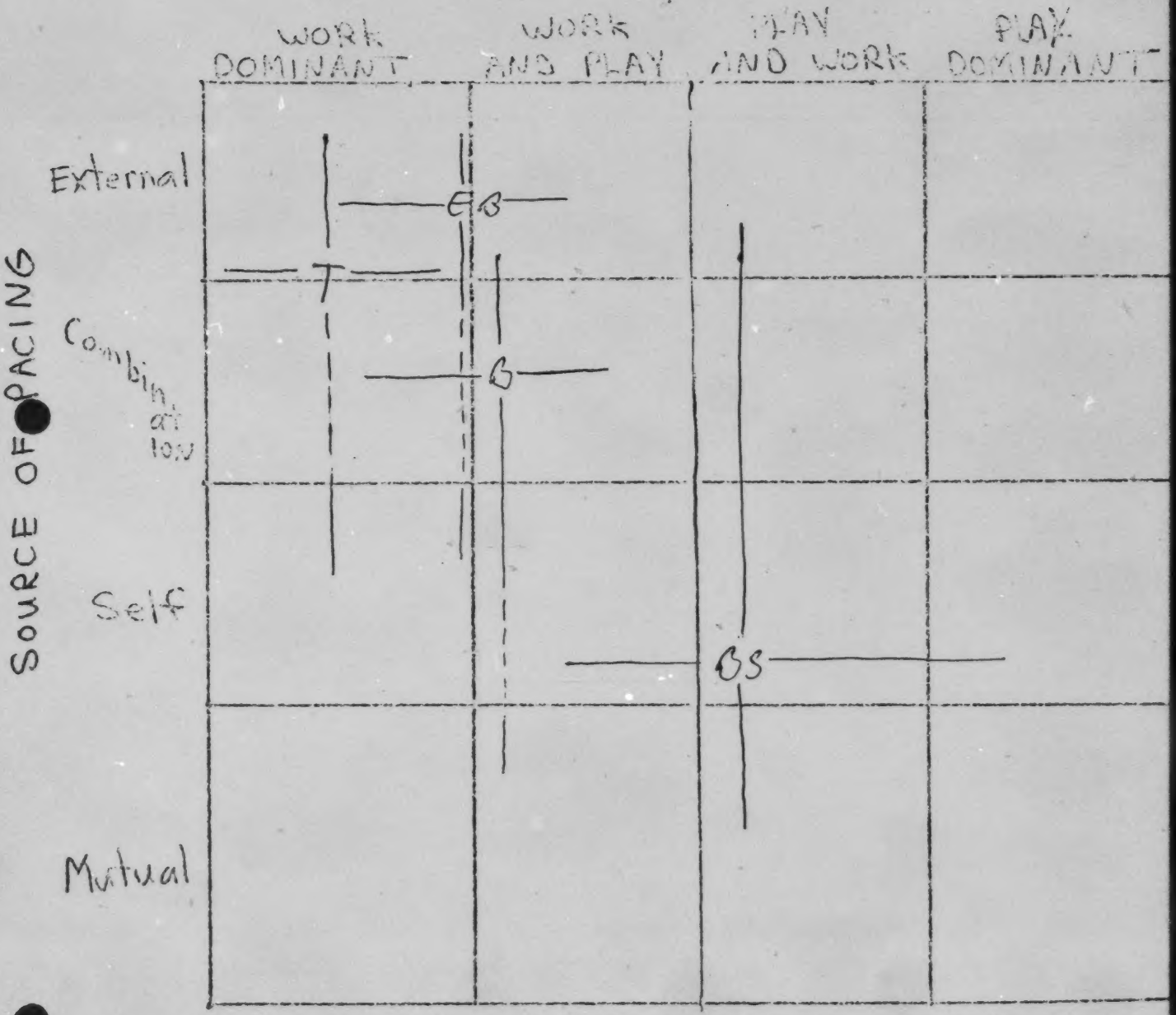
FREQUENCY OR PUPIL OCCUPANCY TIME

THE STRUCTURE OF LEARNING ENVIRONMENTS AND BEHAVIOR



Preponderance of Work or Play
Forms of Learning
in Relation to Pacing

WORK OR PLAY



ACTION QUALITY = +

Evidence Required of Pupil Learning or Productivity in Relation to Pacing

EVIDENCE REQUIRED OF INDIVIDUAL PUPIL'S LEARNING OR PRODUCTIVITY

Source of Pacing	HIGH CONTINUOUS	MODERATE REGULAR	LOW IRREGULAR
External	EB Section EB Class NJ Section	~~BS Class~~	
Combination		BC Cluster (earn) BS Cluster	
Self			EB Table NJ Partition BS Contain
Mutual			B Contain group 1 (spend)

FREQUENCY OR PUPIL OCCUPANCY TIME

SOURCE OF FEEDBACK FOR STEPS IMPORTANT

TYPE II

TYPE I

	One step or repetitive steps, no perceived goal beyond step itself	Several steps to single goal	Several routes to single goal	Many routes to many goals
None Available			EB_4	
Teacher	EB_1 EB_2			
Presented Rule or Sign	T_1 EB_5	EB_6 T_2 G_1	G_2 EB_3	
Consulted Rule or Sign or Teacher		BS_2		
Didactically Designed Object		BS_1		
Functional Object			BS_3 BS_4	B-spend
Functional Situation				
Consulted Above				

FREQUENCY OR PUPIL OCCUPANCY TIME

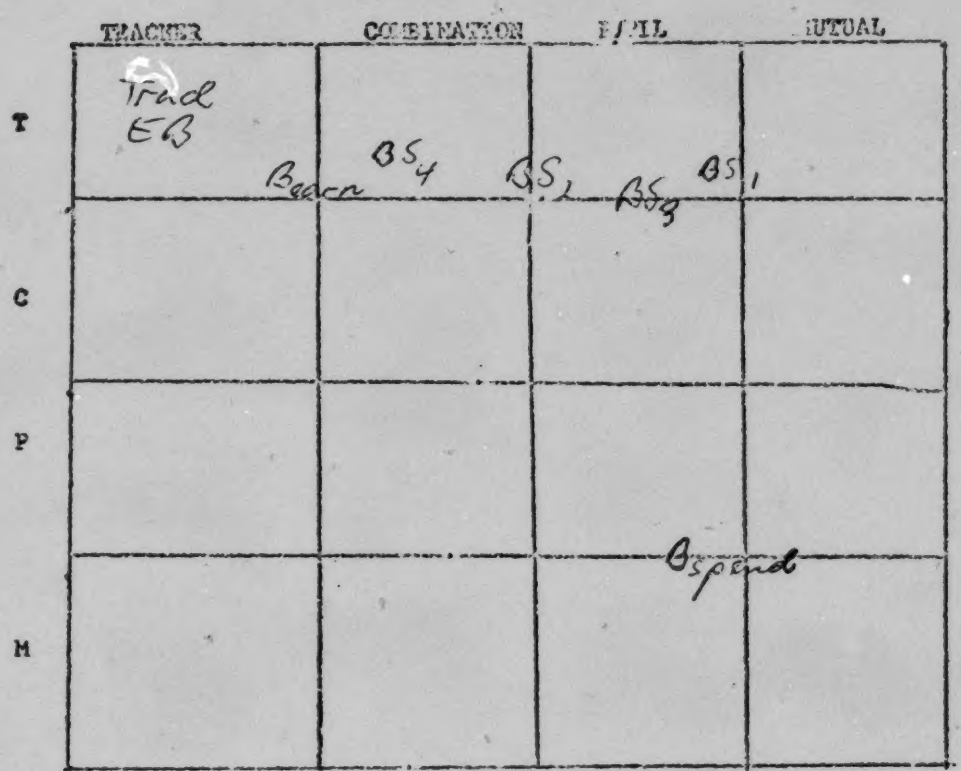
(6)

MAJOR STRUCTURING AND MINOR STRUCTURING OF EPISODES: DECISIONS

WHO DECIDES:

MINOR STRUCTURING - SUBEPISODE MAINTENANCE

WHO DECIDES:
MAJOR STRUCTURING — EPISODE INITIATION AND TERMINATION

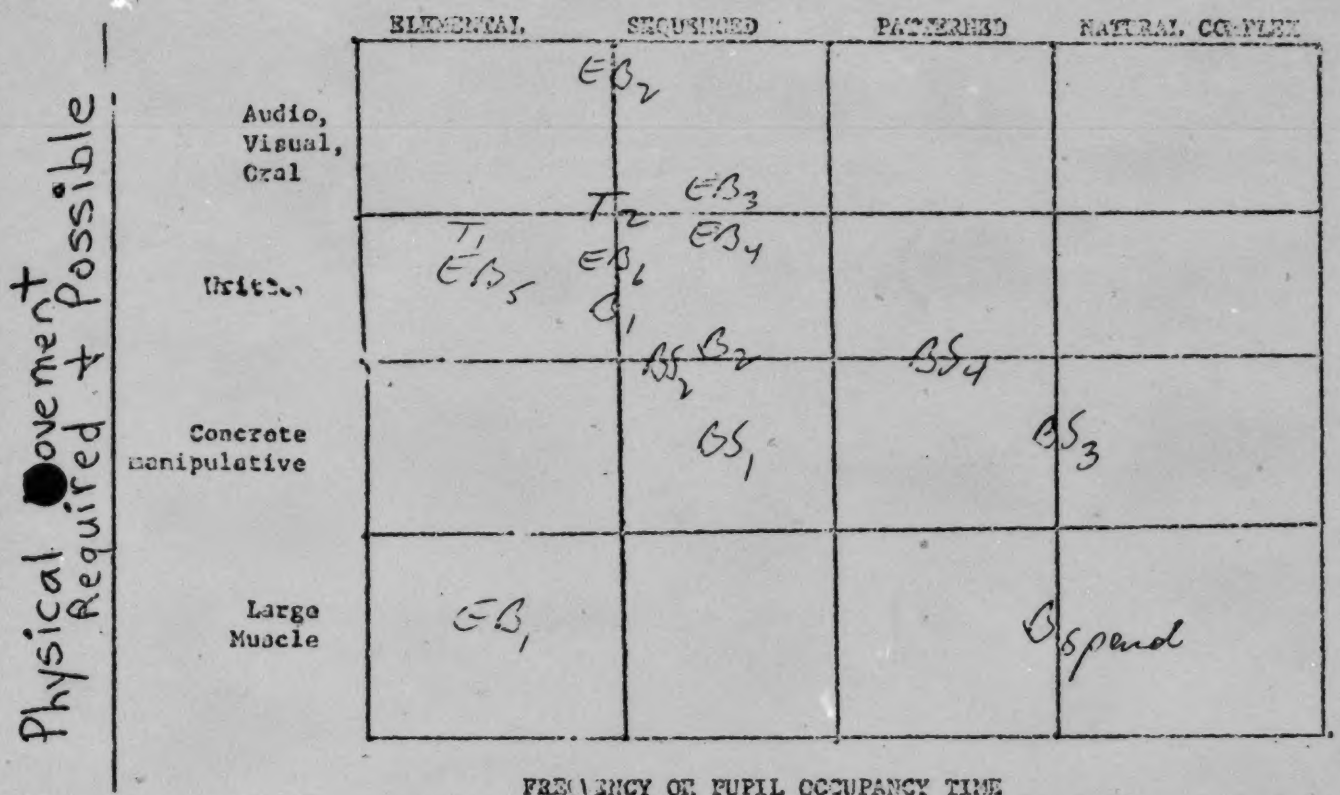


FREQUENCY OR FULL OCCUPANCY TIME

(7)

MEDIUM OR MATERIALS AND MODE OF PUPIL ACTIVITY

INTEGRATION/RELATIONAL COMPLEXITY OF ADJACENT ELEMENTS: COGNITION REQUIREMENTS AND POSSIBILITIES



TEACHER - PUPIL LEARNING TASK INTERACTION
AND GROUP QUALITY

(10)

GROUP QUALITY

	HIGH	MEDIUM	LOW
CLASS			
SECTION	ER_3 125/3		
PARTITION		BS_2 53/35	
CLUSTER		B_1 50/32, 40/27 57/33, 22/25 B_2 55/35, 64/34	
CONTAIN		GS_2 61/30	BS_1 9/24
TUTORIAL			
$GROUP_d$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

Group Quality

	LOW	MEDIUM	HIGH
CLASS			
SECTION	EB_3 3/30		
PARTITION			
CLUSTER	B_2 0/35, 0/32	BS_2 5/35 B_1 5/32, 3/27 6/33, 3/25	
CONTAIN			BS_3 18/30 BS_1 26/24
TUTORIAL			
$GROUP_D$			
$GROUP_i$			
(TRANSITION)			

FREQUENCY OR OCCUPANCY TIME FOR INDIVIDUAL PUPILS

Pupil Initiated Teacher-Pupil Task Interactions

Pupil Init / Total / Time

	LOW	MEDIUM	HIGH
CLASS			
SECTION	EB_3 2/125/30		
PARTITION			
CLUSTER	B_2 4/55/35 B_2 6/64/3	B_1 10/41/27 B_1 7/22/25	BS_2 20/53/35 B_1 18/50/32 B_1 24/57/33
CONTAIN	BS_1 1/9/24		BS_3 18/61/30
TUTORIAL			
GROUP$_3$			
GROUP$_2$			
(TRANSITION)			

Group Quality

FREQUENCY OR RATIO OCCURANCY TIME FOR INDIVIDUAL PUPILS

Matrix #1, The Knowledge Order and the Social Order, is the basic matrix from which the others can be generated. This is not, at this point at least, a strictly logical generation. Rather, it is a heuristic that has led us to ask each time we approach a problem, what are the knowledge and social aspects of the problem? It is our assumption that every learning environment has both knowledge and social dimensions, and that these can vary independently. The assumption itself is as old as the sociology of knowledge, and our rereading in recent days of Durkheim (1956), and Waller (1932), and Dreeben (1967) has confirmed our own intuition of these dimensions. None of these earlier sociologists was as concerned as we must be to work out the possible combinations of different knowledge and social positions, but we have found it instructive nonetheless to relate their observations to our general system.

The knowledge order is conceptualized as varying along a continuum from traditionally prescribed and proscribed through rationally prescribed to constructed. "Traditional" presumably speaks for itself. "Rationally prescribed" refers, epistemologically, to a conception of knowledge as given in reality, discovered by observation and reasoning, and tending toward the same forms for all who submit objectively to observation and reasoning. Knowledge as "constructed" means knowledge as an invention of man that must conform to regularities in reality, or in nature, but that can take different forms in accordance with different judgments made in the course of its construction. This last view of knowledge holds that knowledge is necessarily subjective or personal or cultural in some respects for every individual, that though it must be consistent with reality it can transcend the possibilities actualized in reality, and that it must be reconstructed in some sense by every individual

who would master knowledge. While many philosophers could be cited in support of these distinctions, it is Dewey, (1929,1938) who has most profoundly influenced our own thinking about knowledge.

The social order is conceptualized as varying along the same dimensions, from traditional through rationally prescribed to constructed. In politics, for example, "traditional" again speaks for itself. "Rationally prescribed" corresponds to the viewpoint of the Enlightenment, as reflected in the framing of the American Constitution. "Constructed" refers best to our contemporary awareness of the possibility of inventing new social forms that go beyond the seeming dictates of nature, for example the political economics of Keynes in contrast to the political economics of an Adam Smith. Weber's (1968) triparte distinction between traditional, rational legal, and charismatic forms of leadership relates to the dimension in question, "rational legal" referring to the offices and procedures of bureaucratic leadership, and "charismatic" referring to a form of leadership that is able to break out of those offices and procedures. Parsons' (Weber, 1968) observation that Weber had confounded two forms of leadership in his rational legal category, one that Parsons agrees to call rational legal, and another that Parsons calls professional, is based on the observation that a professional does not merely draw his authority from his office, but depends on a contractual consensus with his clients, through which, we would say, his authority is partially constructed.

"Autonomy" is defined by us on this and all the succeeding matrices as movement along the diagonal toward the intersect of constructed knowledge and constructed social order. Autonomy is most likely to characterize a general population when the setting conditions in which they function have

the characteristics we associate with this intersect, provided that the individuals in the setting bring to it expectations and capabilities that are appropriate to the setting. If this latter condition is not met, the greatest autonomy may be possible for the population as a whole in a setting located some distance from the constructed pole of the diagonal.

It is conceivable to us that both societies and individuals pass through stages of autonomy represented by their progress along the diagonal. It is in this sense, for example, that we might reconcile Erikson's (1963) identification of a stage of autonomy in early childhood with, say, Piaget's (1965) or Van Den Daele's (1968) ascription of autonomy to much later stages of the individual's development. In addition, individuals can be seen as moving toward or away from autonomy, or as exhibiting autonomous or dependent traits, to the extent that they deviate in one direction or another from the general norms of the settings they occupy at any point along the diagonal.

Some time after we had formulated the basic outlines of our matrices, we noticed that the conditions we associated with the upper left corner of matrices conformed closely to those Anderson (1939) called "dominative", and those of the lower right hand corner with those he called "integrative", while the center of our diagonal matched the conditions he listed in a neutral category. We have therefore labeled the diagonal as a dominative-integrative dimension and are persuaded that this is more descriptive than its being called an autonomous-nonautonomous dimension, especially in view of our idea that autonomy can be manifested in some form at any point along the dimension. In our own reflections on autonomy and in a number of the writings we have consulted, for example Maslow (1962), we have noticed a consistent association of the most fully drawn conceptions of autonomy with

the idea of personal and social integration, the first part indicating an integration of the work and play, or abstract and concrete, or other aspects of the individual's life, and the second indicating his differentiated integration within the groups with which he shares his life. Durkheim's contrasting of the relationships among individuals in "mechanical" and "organic" societies, which parallels our social order dimension, has also contributed to our realization of the significance of the dominative-integrative dimension.

We also considered, briefly, labeling the diagonal a closed-open dimension, with reference, for example, to Popper's construct (1963). However, we want to avoid a necessary association of the integrative pole of our dimension with the commonly understood philosophy of the "open classroom", for example as defined by EDC, since this philosophy centers on the individual learner in a way that may locate it somewhat farther back on our dimension, in contrast, say, to the Bank Street philosophy, or George Dennison's (1969) philosophy of education. The evolution of our matrices is very interesting with regard to the question of the individual's relationship to the group, and, as will be remarked on further below, was influenced by our trying to account for some data on one of the backup matrices, with results that eventually ran through the whole system.

Instead of referring to the diagonal, we could speak of autonomy with reference to the two primary dimensions of the matrix separately. This may be useful for dealing with certain questions, but the autonomy that is possible from movement along one dimension alone is quite limited, and might best be represented by the vector that results from an individual's position with respect to both dimensions. Furthermore, there are reasons to suspect that an individual's movement along the two dimensions, independent as they may be theoretically, will be correlated. Turner (1962) has observed, in a

general discussion of the concept of role that has influenced us considerably, that where an individual occupies two positions, let us say "teacher" in the commonly accepted sense, and "parent-surrogate" or"socializer", with respect to the same individuals in a given setting, he tends to amalgamate these into a single role. Generalizing this to the individual and two sets of conditions, the knowledge order and the social order of a learning environment, we would expect individuals to amalgamate their expectations into a single role, or a consistent role set (Merton, 1968) in that environment. This has some fundamental implications for the structure of learning environments which we will now state as a set of hypotheses.

First hypothesis: The knowledge and social orders of effective learning environments will tend to be complementary; the knowledge and social orders of ineffective learning environments will tend not to be complementary. Operationally, this means for us that the rationales of the different models we are examining in Project Follow Through will tend to center at different points along the diagonal,either at a consistent point for each model, or at more than one point with deliberate movement between the points recognized in the model. Behavior in exemplar classrooms will, therefore, tend to be located on the diagonals of the various matrices on which we plot our data, and behavior in malfunctioning classrooms will tend to be located away from the diagonal on at least some of these matrices. These latter classrooms may not center consistently in another location, it must be said, in which case they would illustrate the third hypothesis, to be stated below.

The effectiveness of a learning environment can be defined with respect to social expectations and knowledge expectations separately, although we

expect these expectations to interact. Where teachers' and students' social expectations are congruent or complementary to one another, and these expectations are being fulfilled, the learning environment can be said to be effective even though the criterion might not agree with one applied by an external observer. Where this congruence is not the case, we speak of a "discipline problem" or a "contest" or some other form of social disorganization in the classroom. Our matrices should allow us to specify social expectations in more comprehensive detail than we could otherwise, with respect to behaviors vis-a-vis persons in the classroom, objects, space, time, movement, and so on.

In a parallel way, we can say that a learning environment is effective by a knowledge criterion when there is congruence between the teachers' and students' knowledge expectations, and these expectations are being fulfilled.

It will be noticed on the backup matrices of our system that we have identified a variety of dimensions of knowledge, or aspects of the basic traditional-to-constructed dimension, for example, a cognition complexity dimension that runs from elemental through sequenced, patterned, and natural complex. A question that immediately occurs, perhaps the most important question for some who might use the matrices, is whether it should be expected that, say, skills, which tend to center in the sequenced region of the complexity dimension (cf. Bartlett, 1958), will be most effectively learned under the relatively traditional or rationally prescribed conditions that intersect with skills along the diagonals of the various matrices. Our cautious response includes the following considerations. (1) It is certainly true that skills may be most effectively learned in a functional context.

However, learning environments that stress the development of skills in this way, or the application of skills, will tend to center further along the knowledge dimensions generally, for example, in the patterned or natural complex regions of the cognitive complexity dimension. It is predicted, therefore, that the social conditions of these environments will tend likewise to center further toward the constructed end of the social order, and thus to intersect closer to the integrative pole of the general matrix diagonal. The reason for this and many similar predictions is not just that, say, an ideology is involved, but that the effectiveness of the functional application of skills requires, at the behavioral level, the conditions that we have identified as being consistent in a more integrative environment. (2) On those occasions in a more integrative environment when skills become the explicit focus of learning, there will tend to be a shift in subsetting conditions toward the dominative pole of the diagonal, for example, as the learner is urged to imitate the teacher or to practice. If these shifts do not occur, we are obliged by our matrices, if not our fondest hopes, to expect that the learning of skills in the environment will be less effective. Apart from more technical reinforcement considerations, we must notice that the "life" conditions/or "play" conditions, in the language of many educators, that the learners themselves are likely to associate with an integrative environment, present many alternatives to the pursuit of a specific skill. It is thus one of the principal concerns of the teacher in this environment to find ways to channel life or play into learning, through interventions designed to effect both the pace and the quality of the students' accomplishment. It is one of the basic facts of schooling, no matter what form it takes, that a "teacher" by definition of her role, is expected by her

students and the community and equally expects of herself, to influence in some way the pace and quality of students' learning. The means she uses for this might be expected to vary with the type of learning involved. (3) If the knowledge expectations in an effective learning environment center on the learning of skills, and even more if they center on the learning of elements, then we predict that the social conditions will tend to center toward the traditional and rationally prescribed end of the social order dimensions. To reverse a line of reasoning that we employed above, it is not only that these social conditions will be most complementary to the knowledge conditions, but that a common ideology or interpretation of teachers' and students' roles in the knowledge and social orders will inform the choices along both dimensions of the matrices. (Cf. the third hypothesis, below)

We have entered the names of some of the Follow Through models, and some other familiar models, on the basic matrix in order to show our rough predictions at this point of where their exemplars will appear on the backup matrices. To illustrate how the matrix works, consider a pair of disfunctional learning environments. First, imagine -- it will not be hard -- a university classroom in which the professor is expounding eloquently his personal constructions of knowledge that far surpass those of the giants on whose shoulders he stands, who exhorts his students to do likewise, and who rigidly controls their opportunities to do so by not entertaining questions from the floor and by examining the students strictly on the schedule of his own pacing rather than the students'. Barring a rebellion by the students (cf. the third hypothesis), this classroom would tend to center in the upper right hand region of our matrices. Imagine instead now an elementary school classroom where the teacher wants to instruct her pupils in certain

assorted facts and skills, but wherein she has given a loose social rein to the pupils, re their interaction and their pacing, that tends not to result in the students' convergence on these facts and skills. Whether this latter classroom is the classic disorganized traditional classroom, or whether it is an attempt to imitate the social order of an open classroom without the corresponding shift in knowledge objectives, it will be readily located in the lower left hand region of our matrices.

Second hypothesis: An intervention centered at one or another point along one of the dimensions of a learning environment will tend to influence the centering of behavior along other dimensions of the environment. Given the rationale of the first hypothesis, this second needs little further elaboration. It is often remarked that technology runs in the van of cultural invasions, and this applies in the classroom as much as in any other domain. The introduction of manipulable materials into the mathematics classroom presages a potential, though not an inevitable, accomodation to mathematics "laboratory" practices in the classroom, including different groupings of the children, different teacher-student interactions, and so on. Of course, the extent of the changes that follow the introduction of these materials depends partly on the teacher's objectives, but equally, some changes are likely to occur that the teacher may not have anticipated. Given a teacher whose tendency is to rationalize the classroom first, or with greater awareness, with respect to the knowledge order before the social order, the unanticipated changes are more likely to occur in the social order. Team teaching, nongraded instruction, programmed instruction, and other technological inventions that have been introduced on a large scale into American classrooms in the last decade or so have resulted in a general movement of

the so-called conventional classroom somewhat down the diagonals of our matrices. Our own use of the term "traditional" in the matrices has an ideal-typical quality that may be increasingly difficult to match in actual classrooms in America today.

The second hypothesis alerts us to a way that changes or development in a learning environment can be studied over time, in relation to interventions at identified locations in the matrices. Lehane, of our project, has suggested that teachers might resort to different types of interventions in a predictable cumulative sequence, beginning with power, next turning to the grouping, and last focusing on materials with further implications for power and grouping. If we add to this a fourth and final resort, shared tasks, we may find some correspondence to the prepotency of different types of interventions along the diagonal of our matrices.

Third hypothesis: In effective learning environments, teachers and students will act in reciprocally functional roles; in ineffective classrooms, teachers and students will be in conflict, both within and between their respective roles. This hypothesis may be considered a derivative of the first, but it adds the element of teachers' and students' organizing their responses to the various conditions of the learning environment in terms of roles. In our original proposal for this research, we argued that it would be possible to find patterns among the various possible combinations of classroom setting descriptors we might borrow from Gump or others, because the individuals in the settings would tend themselves to organize these conditions in terms of roles. Operationally, this hypothesis tells us to run a spindle through our matrices at the centering point(s) for each of the Follow Through models, and to examine the organization of role expectations

and performances that cluster around the spindle for one or another model. It also instructs us to look at the ways in which teachers initiate students into the roles in their classrooms, by "grooving", to use a term Louis Smith found appropriate for a classroom he studied (1968), by gradual changes in the material environment of the classroom, or by some other approach to the students. Presumably, certain actions by the students on the teachers' roles could be examined in the same way, for example, the ways students socialize their teachers to certain roles, as described so beautifully by Waller. (1932) More generally, the process of role definition must be examined not merely as one of conformance by the various parties to given roles, but as one of construction of the roles, a process that becomes more complex as learning environments center more toward the integrative pole of our matrices, where there are many more possibilities for teachers' and pupils' individual roles.

One of Waller's fundamental observations about American classrooms as he observed them forty years ago well illustrates the type of systematic role conflict that can be found in ineffective or disfunctional classrooms. Waller noticed that many teachers believed that a personal social relationship to individual students was necessary to foster learning, or the learning the teachers valued the most. At the same time, however, the community's and other teachers' expectation that a teacher should socialize students to conformance to authority required that they occupy a traditional position on many occasions. The situation was intensified by the fact that the teacher's personal relationships to the students contributed to a group quality among the students themselves that then could be mobilized with greater force against the teacher than if he had maintained them in the relative isolation of individuals in a crowd. (Cf. Jackson, 1968 on this last point) The obser-

vation may still be pertinent today in some unexpected places, for example, some of the experimental high schools where the teachers' roles seem to swing drastically along the dominative-integrative dimension of the learning environment.

The most general interpretation of our third hypothesis leads us to examine the various strategies by which teachers and students maintain the roles in their classrooms. For example, Kounin's (1970) research on discipline and group management in classrooms lends itself to interpretation and suggests uses we ourselves could make of our matrices. We would predict that potential conflict or disfunction would exist where the behavioral centerings of the different matrices did not correspond to one another matrix, and that both teachers' and students' attempts to cope with these inconsistencies could be examined.

An important question raised by the third hypothesis is whether or not teachers and students are aware of their roles in a learning environment. First, let us agree that there will be more consistencies in teachers' and students' expectations and performances in an environment than they are aware of, "performance" referring here to those behaviors that relate to expectations. An interesting study could be made comparing the effectiveness of classrooms or other learning environments in which the teachers and/or students were more, or less conscious of their roles. Second, the question is especially problematic in its application to young children. The developmental cognitive psychologists, Piaget, Kohlberg, Van Den Daele, et al, are agreed that children do not organize their consciousness of roles into classes of expectations and performances until well into the concrete- operational stage of thought, and thus that children before this

stage are likely to report their awareness of expectations and performances in relation to different specifics in the environment. As we indicated in the December 8 memorandum, "Notes on the definition of autonomy and locus of control", we think the implication of both this developmental observation and the horizontal decalage argument is that research on Follow Through children's self-concepts as learners should concentrate on the degree and quality of the differentiation of the children's conceptions of the learning environment. From our matrices we would predict a higher degree of differentiation as learning environments were located further toward the integrated pole of the matrix diagonals. Again, the matrix dimensions should suggest the specifics of the children's expectations and performances. A different type of prediction would relate to the quality and degree of consistency or predictability that the children attributed to the environment, somewhat along the lines of the external-internal control question. (Lefcourt, 1966) We would predict greater feelings of internal control as learning environments were located closer to the integrated pole of the matrix diagonal, and greater consistency as the environments conformed to the diagonal. Two members of our project will be pursuing these questions this spring through the interviewing of a limited sample of children.

Dreeben's use of the term "norm", including a distinction between norm beliefs and norm behaviors, is more cautious than our use of the term "role". We are persuaded that the role concept has more powerful implications for the organization of behavior in learning environments, but we will not be reckless in our use of it.

Fourth hypothesis. <u>The role expectations and performances teachers</u>

and pupils have developed in prior learning environments will influence their attempts to define their roles in new learning environments; the teachers' and students' previously learned roles will be functional or disfunctional in proportion to their correspondence to the role possibilities in the new environments. Matrix #16, On-task and Off-task Behavior Compared in Settings and Subsettings, suggests the operational form that our fourth hypothesis can take. Other behaviors could be analyzed in this same form, for example, the application of criteria, a dimension employed in Matrix #17. The major rationale for the fourth hypothesis follows from our statements above. A few additional remarks are called for here.

First, the conative form of the hypothesis, that teachers and students will try to define their roles, is important to us. As we stated once before, Turner's analysis of the process of role definition has had a major impact on our thinking, in the first place because it emphasizes the process itself. Turner points out that this emphasis was central to Mead's thinking about roles, but that it got considerably narrowed down as research in bureaucratic and military settings concentrated on the limited process of conformance. Turner argues that, while the individuals in a setting may not, on questioning, be very explicit about the behavior structure of a setting, they attempt nonetheless to orient themselves to the expectations and possibilities for behavior, and construct their roles in the setting and its subsettings accordingly. It is this larger process that invites attention in learning environments, and one might, following Turner, expect the process to take somewhat different forms as the possibilities for roles became larger in more integrated settings.

Traditional first grade teachers have been known to complain that the children from certain Head Start programs were not properly prepared for the

discipline of "real school," and open classroom teachers in the upper elementary grades have complained that their students had not learned self-discipline in the early grades, or were too constrained in their thinking and activities. In both cases the teachers may, to a greater extent than is warranted, be shifting to others the explanation for inadequacies in their own ordering of the learning environment. Still, if one accepts the possibility that different settings or subsettings may be useful for different purposes, to students as well as to teachers, then the question whether or not students are developing role capacities for these different settings becomes the most interesting general form of the problem. The problem seems to have concerned every sponsor in Follow Through in one way or another, ranging from Lauren Resnick's development of a PEP curriculum to Gotkin's attempt to transfer to children certain controls over the rules of a classroom game.

The fourth hypothesis obviously lends itself in addition to comparisons of out-of-school and in-school environments, particularly questions about the effects of different homes on children in different school settings. The hypothesis also forecasts the kinds of study that might be made of the relevance of roles learned in different schools to the roles required or possible in different occupations.

Fifth hypothesis. The autonomy possible for either teachers or students in a learning environment is a direct function of the integration of the environment. Given the way the matrices have been constructed, it is evident that the variety of group, pacing, materials, and activities possibilities for students increases as the learning environment moves toward integration. The hypothesis presumes not just that these possibilities will

exist in the abstract, but that they can be observed as possibilities, that is, that a student can experience in the environment the functional integration of the knowledge and social orders that is represented in the matrices by the diagonal. An environment in which it is possible to shift from one location on the diagonal to another in different subsettings offers still more possibilities for autonomous behavior than an environment that is fixed in one location. For example, if children are pursuing individual activities in what is called on the matrices a "contain", and several children can form an independent group while several other children can be called together by the teacher in a section, the possibilities for autonomy are greater than if either of these groupings were, for any reason, proscribed.

The hypothesis has been stated with reference to both teachers and students. Let us pursue the argument further with respect to students first, and then turn to the argument for teachers.

In the original proposal for this project, it was stipulated that "an individual's autonomy has generally to do with his initiating activities or tasks and social interactions, his regulating his own part in these according to information and standards that he comprehends and accepts, and his terminating and evaluating them in accordance with his own priorities and criteria that, again, he comprehends and accepts, or perhaps indeed generates," This stipulation is still proving useful to us, but now, as implied above, can be defined more operationally in relation to the matrices. To illustrate this -- and because it is one of the more problematic of our dimensions -- consider the Group Quality dimension that has been related to task and personal social interactions in a subset of

our matrices. The categories of the dimension, from which we have recoded our behavior setting data that was obtained using Gump's categories, are as follows:

Group Quality

Class (Teacher present, more than 10 students, same task, i.e., same starting and ending points in same concern.)

Section (Teacher present, 10 or fewer students, same task.)

Partition (Teacher potential, more than 10 students, same task. Not yet observed with fewer than 10 students, but if observed, the category might just be extended to include this.)

Cluster (Teacher present, 10 or fewer students, different tasks in same concern.)

Tutorial (Teacher present, one or two students, student's task.)

Contain (Teacher potential, any number of students, different tasks in same or different concerns.)

$Group_d$ (Group dependent: Teacher potential as teacher, any number of students, shared task, differentiated functions.)

$Group_i$ (Group independent: Teacher potential as participant, any number of students, shared task, differentiated functions.)

Although several possible combinations of the criteria used here are not recognized in the categories we have named, it has so far been possible to work with these categories, possibly because they are the more functional combinations in one type of classroom or another. Furthermore, as can be seen in Table 4 (page 61), in the four classrooms we have observed the location of pupil occupancy times in these different groupings tends to move down through the list in the order of the traditional classroom, Englemann-Becker, Bushell, and Bank Street respectively.

The question now is what dimension the categories represent, or how are we interpreting "group quality"? We have much thinking yet to do on this, but it seems that two dimensions are combined in a manner that is difficult to disentangle. The first of these is differentiation of the students, the second, integration of the students. Differentiation is the dominant dimension, at least on first inspection, that orders the categories down to Group Dependent. Integration is most apparent in the two group categories, but then one looks back up into the list and suspects that lesser degrees of integration are ordered here also, because,for example, more personal social interactions is likely in the Contain than in the Class, or again, because the shared norm structure is necessarily more complex in the Contain than in the Class. Tutorial appears to be an anomaly in the integration dimension until one considers that it is most closely associated with the cluster and the /Contain, the reason being that this seems to be the grouping that most often allows the potential teacher to become present for an individual child for sustained periods of time (5 minutes or longer, by our stipulation.) The Contain is also the grouping in which it is most likely that the students will spontaneously form groups. A whole class could become a group by undertaking a shared task, but we predict that, although teachers may try often to create this quality in the Class, we will most often see only truncated forms of it, for example in class discussions, where the differentiation of the students' functions is superficial at best.

The Group Quality dimension is basically a setting descriptor rather than a descriptor of individual student's behavior per se. We will calculate the time that individual students occupy different student groupings,

but this will then be used to examine and predict the behaviors exhibited by the students in the different settings. These behaviors are most readily identified in relation to Matrices 6 through 17, each of which can be employed in two ways, first, to enter for a whole class or some part thereof either the occupancy time in settings having the given characteristics of the categories or the sum or mean of individual behaviors according to the categories; and second, to enter for an individual student occupancy time or the sum of individual behaviors.

Consider now the entries for an individual student in, say, a mathematics laboratory situation where the basic grouping is a Contain. Making a number of assumptions to simplify the argument here, we might predict that the student's occupancy times will fall in the following cells: student expected to do some major and most minor structuring of episodes, written and concrete manipulative activity expected on patterned materials, application-of-principles problems given without specific procedural instructions,expected response to combination of extrinsic and intrinsic rewards, expected relatively low teacher-pupil and relatively high pupil-pupil task interactions (relative not to each other but to the range of frequencies for each matrix,) expected relatively high teacher-pupil and relatively high pupil -pupil social interactions, expected relatively high pupil initiation of teacher-pupil interactions, expected moderate ratio of self-paced on-task to off-task behavior, and expected comparison of different solutions to given problems (for example, by checking a written calculation with cuisenaire rods.)

If the student's observed behaviors actually conform to the expectations defined above in terms of occupancy time entries, we would conclude that he is behaving with a relatively high degree of autonomy.

Suppose that the student's observed behaviors do not conform to these expectations. It could be that he is pursuing some other task with even higher characteristics of autonomy, or that he is resting, or that he is rebelling against the teacher, etc. Explanations of this kind must be separated from the explanation that is of greatest immediate concern to us, the possibility that the student has not learned or internalized and organized, the norms of the situation, or that the student has not developed the performance capabilities that would make it possible for him to pursue his tasks under these conditions. In either of these cases, which might well interact, the student would be judged to be behaving with a relatively low degree of autonomy. One might question then the appropriateness of the setting or subsetting for the student's learning, and would want to take into account the behavior of other students in the setting, the time the student has been in the setting, the effectiveness of the teacher's interactions with the student, and so forth.

Is a student's autonomy diminished when he participates in a Group and must adjust all of these behaviors to the constraints of mutuality? We think it requires greater autonomy to act with a group and still remain an individual, especially if the group is focused on a task that is beyond the capabilities of its individual members. Certainly the relative shelter of the Contain will often not be available to the individual in the world outside the school. Even given these assumptions of ours, however, it will be possible for us, in the same manner that is illustrated above, to examine the actual behavior of individuals in groups where these expectations obtain.

Let us consider teachers' autonomy much more briefly. It might be supposed that a teacher's autonomy is greatest under the dominative con-

ditions described by the matrices, but we do not think so. Not only does the range of possibilities for the teacher's actions increase as the learning environment moves toward integration. Where there is congruence between the teachers' behavior and the expectations of the teacher's sponsors, professional and community, greater freedom for the teacher to make curriculum decisions of all kinds, vis-a-vis subject matter, materials, evaluation, grouping,movement, noise, and so forth, will be conferred on the teacher as the learning environment agreed upon moves toward integration. In the project we will in fact be examining these external expectations, predicting that congruence will be reflected in the professional sponsors' different ways of working with the teachers, and that relative degrees of congruence or lack of congruence will account for certain shifts from the professional sponsors' models in observed behavior in the classrooms.

Finally, our concept of autonomy by no means implies that either autonomous students or autonomous teachers will be less energetically engaged in the learning process than students and teachers who exhibit little autonomy. The distribution of energy is likely to vary between different types of classrooms. Likewise its visibility will vary. ETS's (1970) conclusions that the open classroom teacher must be continually engaged in the design of the learning environment, and that she must actively seek students where they are in their learning in order to facilitate their learning, squares entirely with our own interpretation of the open classroom.

Our comments on the backup matrices, #2 to #17, will be relatively brief.

Matrix #2, Preponderance of work or play forms of learning in relation to pacing.

"External," "combination," "self," and "mutual" as sources of pacing represent our adaptation of Gump's external, self ,and mutual. We have defined combination to apply to a teacher's alternating with a student the pacing of the student's task, while mutual refers to the reciprocal pacing of a shared task, shared either by a teacher and student(s) or among students. Combination could also apply when one student is, say, monitoring another in the second's task, but we have not yet observed this.

Whether or not external-to-mutual represents a single dimension we do not yet know. We became aware of the necessity of differentiating between combination and mutual, and ordering the categories from external to mutual, as a consequence of our working out the group quality dimension in matrices #10 to #14. When we then rewrote the pacing dimension in Matrix #2, we found that the intersect of mutual with play in the lower right hand region brought the entries one would hypothesize for the matrix closer to the diagonal. This discovery is typical of many that have confirmed our growing sense of the potential consistency of the matrices. Perhaps the external-to-mutual dimension could be labeled "intensity of self pacing," since it could be argued that this intensity increases in many mutual situations, for example, competitive games.

Work, however, can also be mutual. What one next realizes is that we have been using the stereotyped ideas of school as work or school as play that permeate, especially, the literature of early childhood education. Perhaps it would be more valid to speak of a "learning as school" to "learning as life" continuum, following Dewey, who felt that both work and play as they are known in life generally were absent from the traditional school experience.

We will leave this an open question for the present, and will interpret the matrix in the more limited terms of how much play is injected into the students' schoolwork. That the students in more play-like conditions may be pursuing their activities as energetically as any others will be ignored for now, except for the interesting connotation here, from the standpoint of socialization, that schoolwork defined in contrast to play is not fun.

As inadequate as it may be, Matrix #2 has called our attention to certain features of the classrooms we observed this fall. These are entered on the matrix as "action quality"and "materials."

The action quality of the traditional classroom was one of unrelieved work, one wants to say drudgery, throughout the day in the classroom. The tasks and the behavior of the teacher and students were humorless alike. Had the students not accepted this expectation, we might have seen those acts of attempted sabotage that are characteristic of the disfunctional classroom under these conditions, but as far as we could tell the students persisted in their tasks, at least while they were under our observation. This was, furthermore, quite consistent with the expectations of the school principal and the parents we interviewed, almost all of whom subscribed to the importance of schoolwork for getting ahead.

The intensity of the work was greater in the Englemann-Becker classroom, but it frequently took on a certain gamelike quality. This was

most evident perhaps in the cheering-section tone of the mass responding, especially in the mathematics section, where the teacher's sense of rhythm was one of the most prominent features of her style. A game was also suggested in the frequent comment by all the teachers, "I'm going to see if I can trick you," which was picked up a few times by the students themselves, as they remarked that they had tricked the teacher.

Several of the Englemann-Becker students interviewed actually responded "work" to the question, what did they like to do most in their classroom. This struck us as a highly significant response, differing from what we would expect in the traditional classroom (where we did not interview students) in its claim that work was liked, rather than merely accepted, and from the other classrooms in its undifferentiated quality.

The earn-spend structure of the Bushell classroom had a still more pervasive gamelike quality. Leaving aside the more technical reinforcement theory rationale for the distribution of tokens, the system struck us as an economics game. It was significant that the children interviewed by us said that the handwriting area was their favorite activity in the classroom because they could earn the most tokens there, and that in fact both of our individual subjects chose this area for their elective earn period. We noticed that about half of the student-initiated interactions throughout the day involved the students' asking for an eraser, and that they received a token each time they made the request. It was in the handwriting area that this request could be made, or was made, most frequently. Nothing personal in the teacher's manner seemed to account for the children's preference. As with all the teachers, one of her most frequent comments accompanying her spontaneous reinforcement of the children was "Nice to see you working so hard," which testifies to the predominance

of work over play in the rationale of the earn period. Acknowledged play was separated from work and confined to the spend periods. These play periods accounted for considerably more pupil occupancy time than the corresponding play intervals for Englemann-Becker children who had finished seatwork or table assignments ahead of time, and there were no such periods in the traditional classroom.

There was no formal distinction between play and work in the Bank Street classroom, and indeed much of the children's activity during the day had the quality of both. The interaction at the math table, the manipulation of the balance apparatus, the guessing how many objects were contained in different size jars, were all decidedly playful as well as potentially task oriented. We say "potentially" to be alert to the dynamics of this identification of work with play. Two girls who were sent by the teacher to measure another room in the building with a ruler constituted one of the few real groups, by our definition, that we observed in any of the classrooms, leaving out the groups that formed around some of the toys in the Bushell spend periods. We were able to follow the children during only the first few minutes of their 15 minute absence from the classroom, but it seemed possible during this time that their social interaction would be dominant over the requirements of the assigned task. Indeed, when they returned they had not completed the task to the teacher's satisfaction. This illustrates the potential divergence of the group's activity from the task expectations of the classroom, and the possibility that the initiation of a group task must be mutual, as well as its maintenance, if play and work are to be interchangeable. More generally, it illustrates the observation that the conditions in the lower right hand region of the matrices add up to what children are likely to perceive

as a play environment, and that the definition of school objectives under these conditions is very demanding for students and teachers alike.

The traditional classroom contained virtually no play materials. There were quite a few in the Englemann-Becker classroom, for example building blocks, a play kitchen area, and games, and about as many in the Bushell classroom, but, again, they were used more frequently in the latter during the time of our observation. No manipulable materials were used in instruction in the Englemann-Becker classroom, except in an afternoon science class where the teacher demonstrated a lesson on floating and sinking objects. A few manipulable materials were employed during the earn periods in the Bushell classroom,specifically a bead counting frame in mathematics, pictures to cut out, color, and paste in the phonics area, and a set of standup figures of "community helpers" used for quasi-social studies instruction in the phonics area and also played with during the spend periods. At best, incipient play was associated with the children's use of these materials during the earn periods. The Bank Street classroom contained the most play materials, and, more significantly, they were used throughout the school day. Games and art materials were pointed out to us by students as the things they liked to do best in their classroom, and it was only in the Bank Street classroom that a teacher called our attention to children's play, particularly one child's construction with blocks, as an example of learning.

We visited briefly in another Englemann-Becker second grade classroom where a great variety of manipulable objects and games had been developed by the teacher for the children's afternoon session, not officially part of the Englemann-Becker program. Clearly we have to work out more precise ways of making and recording these observations, but Matrix #2 does alert us to important variations between and possibly within the models.

Matrix #3, Evidence teacher requires of pupils' learning or productivity, in relation to pacing.

This matrix is closely related to #2 and has not yet been fully disentangled from it in our thinking. It is also closely related to the on-task/off-task matrices #15 and #16. The teacher who is continually scanning the room for inattentiveness, or who, in Kounin's use of the popular phrase, "has eyes in the back of her head," is continually demanding evidence of pupil's learning or productivity, granting that conformance to the given social order is also involved. This our traditional classroom teacher did. The Englemann-Becker teachers gage the children's learning first of all in terms of their participation rate in oral responding, and, through the procedure of mass responding, they obtain a higher active response rate in the section than the typical traditional teacher does in either the section or the class. (The teacher in a traditional society, of course, uses mass responding in much the same way.) One of the two children we observed closely in the Englemann-Becker mathematics section seemed to be lagging behind the others of his section in the rate and timing of his responses and was released earlier than the others to work at his own pace at the table. The teacher later confirmed that this child was behind the others in his mastery of the section material and had been sent to the table for some review work. At the table, the children were not systematically supervised by a circulating teacher, but were, rather, functioning in the teacher-potential subsetting we call a Partition, sometimes a Contain. Here the teacher aide, functioning in a watcher-helper role, did not check up regularly on the children's progress. On the other hand, the children did have assignments to complete

within a definite time limit, "homework" for the next day in most cases.

The Bushell teachers sometimes regulated the children's work at an external pace in the earn period areas, but much more often they moved systematically around the areas supervising the children's work in combination pacing, or they moved still more in response to the children's own pacing in the more irregular pattern that we identify with the teacher's watcher-helper role. In the Bank Street classroom the teacher's immediate presence or absence for individual children, especially the head teacher's presence or absence, was highly irregular over the relatively short duration of an hour or even a single day. We interpret this to mean that the teacher believes she does not have to inspect the children's activity as frequently or as regularly to be assured of their progress or engagement. This does not necessarily mean that the children are in fact progressing or engaged. Again, the Bank Street teachers may be as much aware or unaware as the other teachers of how much progress the children are in fact making. The assumption that the Bank Street teacher makes, as elaborated in our matrices, is that the children's learning is functionally integrated with their activity, and therefore, that occasional checks will reveal the ongoing functioning or malfunctioning of this activity. The Bushell teacher makes a related but less thoroughgoing assumption, that the children are progressing in the linearly programmed direction structured into their learning materials. The Englemann-Becker and traditional teachers rely most heavily on the children's oral responses, and secondarily on the written work assigned for definite time intervals. The products of the children's work are very important for the teacher's judgment of their progress in The Bank Street classroom. Indeed, one of the keys to the integrated classroom teacher's

conversion of a play environment to a school environment is her effort to have the children produce evidences of their learning, in the form of booklets, graphs, drawings, constructions, and so forth, all of which were much in evidence in the Bank Street classroom and largely absent in the others.

Matrix #4, Task maintenance complexity and source of feedback.

The task complexity dimension of this matrix is a simplication of more elaborate versions that we tried earlier in attempting to order our data. In a recent conversation with Louis Smith we learned that he has independently formulated this dimension in almost identical terms in order to analyze behavior patterns in a learning environment that includes a mixture of programmed and other forms of instruction, a purpose related to our own.

Our source-of-feedback dimension seems to be ordered in terms of the amount of judgment that the student can, potentially, exercise to obtain feedback. Like the task maintenance complexity dimension it involves different degrees of complexity, but with reference to the stimulus material that is the source of feedback to the student rather than the structure of the task itself.

The simplest way to elucidate the meaning of this matrix is to comment on each of the entries we have made on it. These entries do not account for all of students' time in the classroom, but instead, for those segments of the pupil behavior stream observations that have been more systematically coded, plus some impressionistic judgments on the traditional classroom, for which the behavior stream observations could not be coded.

T_1. During much of the time that the traditional classroom students were seated in a Partition, they were copying word definitions from a primary grade dictionary that each had at his place. The task is interpreted as one step repetitive, and the presence of the dictionaries is interpreted as a presented sign to guide the students' steps.

T_2. When the traditional classroom students were in a reading section with the teacher, they took turns reading for the teacher. Especially

as there were no larger meaning questtions asked, the task was interpreted as overlapping one-step-as-goal, where single words were called for, and several-step-one-goal task complexity. Both the teacher and the written material provided the feedback. One could also say the other children's reading provided feedback, especially when a child was called on to correct another child, and we have considered interpolating between teacher and materials a category recognizing students as teacher surrogates. This, however, confuses the intent of Matrix #4 with Matrix #17, the latter of which focuses on who actually applies the task criteria. Since it is the teacher who is the source of the feedback contained in the approval of another child's response, it has been coded teacher in our preliminary analysis for Matrix #4.

EB_1 refers to the children's participation in physical exercises during the opening session of the Englemann-Becker day. A phonograph record and a teacher standing in front of the class dictated and modeled the exercises for the children. The exercises -- bends etc. -- seemed to us to be one step repetitive, in contrast, say, to throwing an object at a target, where a goal that organizes several steps would be involved. It might be argued by some that a rudimentary element of skill was involved in the physical exercises, and that the task complexity should shade into our one route to a single goal category. Of course, any physical action requires some sequencing of molecular behaviors. The question is how much the action demands that they be attended to separately.

EB_2 refers to the children's naming the days of the week, the months of the year, etc., in a Class recitation during breakfast. It has much the same task complexity as the physical exercises, but has been overlapped with one route to a single goal in recognition of the slightly more salient

sequencing requirement for the children's responses. The teacher's acceptance of correct responses was the only source of feedback.

EB_3, the recitation in the Englemann-Becker mathematics section, definitely centered in the one route to a single goal category of the task complexity dimension, but sometimes extended into the several routes to a single goal category. The pronounced "count downs" in order to "Minus five from twenty-five" etc. were clearly sequential to a single goal. The simultaneous use of counting orally and indicating the count on one's fingers had some of the quality of more than one route, and the recording of the count with marks on the chalkboard, which were then checked, had still more of this quality. The different routes entailed here, on the other hand, were not as distinct as they are in, say, an arithmetic problem involving various combinations of addition and subtraction operations that converge on a single solution. A problem of this kind is not as amenable to the external pacing condition of the recitation, and thus would be more likely to be found in a subsetting where the pacing was combination, self, or mutual.

The source of feedback in EB_3 was largely the teacher, but included the children's fingers and the marks on the board. When the problem was written on the board in equation form, it was clearly a presented rule, in addition to the signs, as we interpret them, represented by the marks.

EB_4, the mathematics homework the children began in the stall and completed at the general table, had essentially the same characteristics of task and feedback complexity as EB_3, except that the children wrote their answers on paper and that, when they went to the table, they could have immediate feedback from the teacher only on request. Neither of the two children continuously observed requested this feedback during the observation.

EB_5, tracing phonics symbols at the general table, had the characteristics of T_1, copying words from a dictionary.

EB_6, copying sentences from the board and filling in a missing word overlaps one step and one route. The feedback for the copying was presented sign. There was no feedback for filling in a missing word, although feedback from the teacher suggests the category "delayed feedback teacher".

B_1, the handwriting earn activity, was interpreted by us as largely a one step, repetitive process, with feedback from both the teacher and presented signs. The same letter was typically written more than 2o times by a single child. Either the teacher told him the letters were correct or incorrect or the child guided onto the example of the letter given in the margin of his workbook, or onto the last repetition of the letter that he had made in his own copying of it. Interestingly, a child was observed repeating a single mistake a number of times, each time discovering the mistake by inspection and erasing it, only to make the mistake again. Here the child's awareness of the two movements involved to make the letter ('x') was a more conspicuous example of an attempt to master a sequence of movements. It might be argued that the handwriting activity generally should be interpreted as sequenced, in line with the idea of hand writing as a skill. Our entry for the handwriting activity extends into the one route to a goal category.

The handwriting workbooks were actually meant to be reinforcing of correct hand movements through a magic ink device, but the device was apparently not dependable and had been abandoned in this classroom. In addition to the many unsolicited instances of feedback from the teacher received by both of the children we observed individually, one of the children requested feedback ("Is this right?," "I don't know how to do it,") once during each of the approximately 30 minute periods she spent in handwriting on the day she was observed; the second requested no feedback

of this kind in handwriting. This consultation of the teacher on a specific problem was not observed at all in the traditional or the Englemann-Becker classroom.

B_2, the Bushell mathematics earn activity, clearly fell in the one route to a single goal category. The use of fingers for counting and the auxilliary use of beads for counting, had the potential for quasi-alternative routes, as in the Englemann-Becker math, but was less systematically developed. The feedback structure was very similar to the Bushell handwriting, including the presentation of correctly worked examples in the workbook and frequent correction and reinforcement by the teacher. Both of the children observed individually consulted the teacher for feedback on problems, one three times in a 30 minute period and the other twice in a 30 minute period.

BS_1, Troy's activity with a mathematics problems sheet and miniature Stern blocks in the Bank Street classroom, is classified as one route to a single goal because, though the material had the potential for, say checking an answer calculated on one's fingers with a manipulation of the blocks, Troy tended to work the problems only with the blocks. Significantly, alternative routes appeared in a playful interaction Troy had with other students in the Contain, as they would give one another two fives instead of a ten,etc., in response to requests for rods of a given length. The source of feedback was mainly the rods, which if properly arranged could be counted to obtain the correct answers to the problem. Troy engaged in considerably fewer task interactions with the teacher than any of the children in the comparable Bushell mathematics activity (12 in 24 minutes), one of them initiated by him.

BS_2, Holly's activity with a mathematics worksheet and Stern blocks, is likewise classified as one route to a single goal. However, Holly was unable to use the blocks correctly, and consequently was far more dependent

upon the teacher for feedback in this situation. Her task interactions with the teacher (53 in 30 minutes) were of approximately the same frequency as those of the children generally in the Bushell mathematics activity, 20 of them initiated by her!

The categories in the source of feedback dimension have been ordered in terms of their potential for individual judgment by children, but this does not mean that they necessarily utilize the full potential. Troy's not using his blocks to check an independently arrived at answer results in our observation's not falling on the diagonal in this case. It may be that this was not a defined expectation for the students working the worksheet problems. Nevertheless, we predict that expectations of this sort will be more clearly associated with didactically designed objects than with teachers or even books as sources of feedback. More precisely, in those learning environments where both Type I and Type II sources of feedback are available, more complex tasks will be associated with books or Type I sources generally than in those where only Type I sources are available.

BS_3, Troy's activity with the balance apparatus, shows him trying a variety of different routes to the question of what will balance with the objects the teacher has placed in one pan of the apparatus. The balance adequately guided his actions towards a correct choice of materials. His readingof the balance pointer told him that he needed, for example, one more Cuisenaire rod to balance the balance. When working with some crayons he discovered that two were too little and three were too heavy. At this point he called the teacher over and she instructed him to break a crayon in half. The balance apparatus was adequate feedback until the task became too complex, then the teacher was consulted.

BS_4, a Class discussion of the attendance chart and cards, shows the

class using several routes to answer the question, "Are there more boys or girls here today?" Some children counted them, others looked to the attendance chart where the names of each child present were listed, the boys on one line, the girls on another. Comparing the two lines solved the question. Once these alternative routes were followed and an answer chosen, the children turned to the teacher for final confirmation.

Had we observed a field trip or sociodramatic play, it would have been classified as functional situation provided or functional situation consulted, depending on whether or not the children had set up the situation themselves to obtain feedback on a problem.

Matrix #5, Relativism of learning performance and social conduct standards.

We have not attempted to make entries on this matrix based on our observations. Arbitrary or categorical judgments are based on the individual's membership in task-irrelevant class, rather than on a knowledge of task-relevant characteristics. It was emphasized to us by the Englemann-Becker professionals that they did not want to have premature access to information about the children's intelligence, etc., because the children had been too easily categorized as disadvantaged, and taught down to as such, before the inception of the Englemann-Becker program. The head teacher in the Englemann-Becker classroom invoked this as the rationale for her feeling that she did not need information about the children's interests at home, and added that the program was designed so that only differences in rate of learning would make a difference in the classroom, these differences being recognized in the groupings of the children for their section classes. The head Bank Street teacher, by contrast, felt that her knowledge of individual children's interests, problems, etc., was extremely important for her teaching. We are certain that there are critical differences among the classrooms in this regard, and we have every reason to expect them to be related to the other matrices.

Matrix #6, Major and Minor structuring of behavior episodes.

It is with this matrix that we obtain far the strongest divergence from the diagonal in the four classrooms observed to date.

Major structuring is defined as the decisions to initiate and terminate a student's behavior episode or whole activity. Minor structuring is defined as the decisions involved in maintenance of an episode. With some differences in manner and degree that we can comment upon, the teachers in the four classrooms alike did virtually all of the major structuring of instructional or recognized learning episodes for their students. In the traditional classroom, students began and finished (whether or not they completed) their activity according to directions given by the teacher. In the Engleman-Becker classroom the situation was the same in the sections. Children in this classroom theoretically could have terminated for themselves, on completion, the followup or homework assignments given for them to work on at the general table, and then could have moved on to a play activity with other materials, but we observed only a few brief instances of this. One of the five Bushell earn periods was elective and thus initiated by children, though terminated by the teacher since a child could not leave the elected activity. All of the Bushell spend period activities were elective, and most children exercised their options without suggestion from the teacher, though a token negotiation was involved. The Bank Street head teacher theoretically gave choices to the children in the Contain, but when she spotted a child who seemed not to be involved in an activity, she went to the child and suggested something for him to do. That this was not just a response to the presence of observers, though no doubt this was a factor, was confirmed by the teacher in a discussion following the observation.

The degree of minor structuring of instructional episodes

allowed to the students in the different classrooms varied only slightly between the traditional, the Englemann-Becker, and the Bushell, the differences being chiefly the pacing differences between them and the slight option given the Bushell students for their mode of counting in the mathematics section. The minor structuring in the Bank Street classroom ranged much more widely from combination, in the clusters, to pupil and mutual in the contains.

We are bound to argue on theoretical grounds that the departures here from our expectancies represent disfunctional aspects of the different settings. Different proportions of both major and minor structuring would seem to be best calculated to maximize especially the pacing and feedback possibilities of the different settings, or the motivation and information that might be recognized as components of different reinforcement sources and schedules. It seems likely that a general press for achievement accounts for at least some of these departures from our expectancies, especially in the Bank Street classroom. Another factor, however, also particularly relevant to the Bank Street classroom we observed, is that the teacher's major structuring of students' activities may also be intended to head off potential social conduct problems. The structuring of pupils' activities in time is the social aspect we particularly associate with major episode structuring.

Obviously, these prejudgments call for very careful observation.

Matrix #7, Medium or materials and mode of pupil activity.

The dimension we have called Integration or relational complexity of adjacent elements: Cognition requirements and possibilities, is closely related to the task maintenance complexity dimension of Matrix #4. However, the focus here is on the complexity of the materials or medium per se, rather than on the task associated with the materials or medium. The letters to be copied in handwriting are an example of elemental materials; mathematics problems presented in a perceptible fixed order are sequenced; mathematics problems presented in a group that contains several regularities are patterned, likewise materials like cuisenaire rods or the game of checkers or Gotkin's Matrix Games; and the balance apparatus, or sociodramatic play, or a rabbit in a cage with food, are natural complexes. Theoretically, the tasks associated with these different types of material could vary independently in maintenance complexity, but we would not expect them to.

The amount of movement that is required or possible in pupils' activities with these different materials or media was thought by us to be particularly significant from the standpoint of the social order of the classroom, the dimension that one must continually attempt to relate to the knowledge order, as we have tried to do throughout the matrices. By our reasoning, if a teacher wants to encourage the kind of thinking we associate with patterned materials and the natural complex, she must develop norms appropriate for relatively high degrees of movement by children in the learning environment. Similarly, if she wants to avoid the problems of this movement, she should restrict the materials and media to elemental and sequenced, which are most likely to fall in the small movement domain of audiovisual, oral, and written activity. Montessori's great attention to the norms of movement in her classroom, and Thorndike's (1941) finding that the children in the "activity"

classrooms they studied conducted themselves more appropriately on field trips than the children in comparison classrooms, are both pertinent to this observation.

With the exception of the Bushell spend activities, the activities of the traditional, Englemann-Becker, and Bushell classrooms observed this fall can be located almost entirely in the upper left hand region of Matrix #7, while the activities in the Bank Street classroom tend to fall toward the lower right hand region of the matrix. The physical exercises in the Englemann-Becker classroom are classified by us as elemental, large muscle, since their elements are not presented as adjacent for cognition.

Matrix #8, Motivation predominant for learning and social conduct.

We have not attempted to enter observations on this matrix either, and yet its relevance to the general system is no doubt central. It was reported/to us spontaneously by both children and school professionals that physical punishment was used on children in two of the classrooms observed, in both cases consistently with school-wide practice; for others have no report of this. Removal of reward, if not punishment, was a conspicuous tactic in the Bushell classroom, through the use of an "off earn-time" removal of students to isolation chairs placed in the classroom. The manner in which the Englemann-Becker teachers asked who had not been trying very hard during the section lessons, and the subsequent distribution of points toward purchase of toys etc. to those that had tried, involved removal of reward, if not punishment, for some pupil's. The use of extrinsic reward was almost absent in the hard-to-believe austerity of the traditional classroom, and verbal punishment was liberally used here ("You didn't do well because you weren't paying attention.") By contrast, there was an extraordinarily consistent policy of attempting to respond positively to children's correct actions in the Englemann-Becker and Bushell classrooms, with positive reinforcement given at very high rates throughout the instruction. Extrinsic verbal rewarding was more evident in the behavior of the Bank Street aides than the head teachers. The Bank Street teachers' motivation behavior may have ranged the most widely from removal of reward through intrinsic reward, but this is only our superficial impression.

Matrix #9, Quality of learning and explicitness of pedagogical instructions.

We have not used this matrix since it was first generated. Its vertical dimension indirectly relates to social control, but it may be identical with the horizontal minor structuring dimension of Matrix #6. We have included it to signal the possibility of analyzing the quality and pedagogical explicitness aspects of the learning task interactions of matrices #10, #11, and #14. Bank Street's considerable research attention to both dimensions represented in Matrix #9 might be valuable for us to take into account.

One of the key observations one anticipates with this matrix is that a teacher's learning task interactions with students must count for more in proportion to their relative infrequency. It might be, therefore, that the Group Quality dimension of the interaction matrices that follow should be matched against both the quality of learning and the explicitness of pedagogical instructions dimensions of the present matrix. The technique of episoding individual children's behavior stream records, and then examining how interactions with a teacher or with other pupils serve to orient or disorient the children's task behavior, would be a powerful way to look at the functions of interventions at different levels of explicitness. It might well be that a statement of fact by a teacher could, on one occasion, simply serve to reinforce fact learning as an objective, and on another occasion, serve to connect facts conceptually for a child. This differentiation of function does not seem to be accomplished by those schemes that simply categorize the cognitive level of teachers' or students' statements without regard to the context within they function.

Matrices #10, 11, 12, 13 and 14, Teacher-pupil and pupil-pupil learning task and personal social interactions, and initiation of teacher-pupil interactions.

We have already commented at some length on the Group Quality dimension of these matrices (cf. pp.21-27 above.) We omitted from that discussion the final category of the dimension, Transition, which Gump categorized as "Group None", and which does not clearly fit into our sequence. Transition has been placed here for empirical reasons, particularly because of Gump's conclusion that personal social interactions between the teacher and students were most likely to occur during transitions. It was of interest to us that Mrs. Gilkeson of Bank Street commented recently, before we ourselves had used the term 'transition' with her, that she might recommend that the early morning transitions be prolonged, in order to allow more time for children to find their own activities and form groups. We assume that 'transition' is being used here in a special sense that connotes the passage from out-of-school into in-school activity. The use of the term also is consistent with our own, however, and Mrs. Gilkeson's expectations might be empirically consistent with the order of our terms.

The conformance of some of our data to the diagonal depends on a questionable assumption we must make. It is assumed that in a Class or a Section a learning task question or other teacher behavior addressed to the whole group counts as part of an interaction for any individual student in the group. We are assuming that in not first naming a student to respond, the teacher is trying to induce a maximum incipient or potential response. Unhappily for the diagonal however, we may be obliged logically to make the same assumption for personal social interaction, resulting possibly in an unpredicted inflation of teacher-

pupil personal social interaction in the Class and Section categories. We may find it necessary to distinguish between positive and negative personal social interactions, especially since it was the positive only that we had in mind in originally construding matrices #12 and #13. We would then for the positive instances predict the low to high order of frequencies presently given in the matrices, and logic, again, would force us to predict a high to low order for negative instances. To the extent that negative personal social interactions were avoided by teachers, beneath frequencies calculated from extrapolating other observations along the diagonal, in learning environments otherwise conforming to the upper left hand region of the matrices, we would be obliged still further by logic to conclude that this was disfunctional for the agreed upon expectations associated with the environment. This might seem bizarre, but it would not be inconsistent with research on socialization to conformance that shows mixed returns from both negative and positive sanctions or with the common observation that traditional teachers use far more negative than positive reinforcement. If the implication were offensive to a teacher, she might reject the action it suggests rather than simply the logic of it. This might then account for various departures from the predicted that we would find in our data, or conformities to the predicted where the implication was not rejected by the teacher.

Matrix #15, Pupil On-task and off-task behavior in relation to pacing.

The term 'task' in connection with learning has an objectionable connotation to some, but we have not yet identified an alternative term that equally refers to the sustained focus of an individual's activity. "Goal" may be too goal oriented, as opposed to a maintenance focus wherein the goal(s) may not be clear. We shall use task for the present.

The logic of this table may be too simple for the phenomena it represent. It implies that on-task behavior will result more from external than from self or mutual pacing, and yet experience dictates that this is by no means always the case. In trying to think this through, some research recently conducted by a colleague, George Ivany, in high school science laboratory classrooms came to mind. Students who were self or mutually paced, and in any case were working in the same vicinity, tended to carry on personal-social interactions on top of, or at the same time with, their pursuit of their tasks. It may be that this and related kinds of behavior are the key to the relationship of on-task to off-task behavior in an integrated environment, whether the integration is defined for an individual alone or for individuals in groups. This integration would be more difficult to effect as the pacing of one's task became more external. Thus it might be that the quality of off-task behavior might also vary with the source of pacing, inattentiveness and the like being associated more with external pacing, and personal-social interaction, or exploration, being associated more with self and mutual pacing. In fact, the integration of task and personal-social activity that is being postulated here for some learning environments was observed on a number of occasions in the

Bank Street classroom, at the mathematics table, in board games, and in a spelling with letter blocks activity on the rug.

Matrix #16, Pupil On-task and off-task behavior compared in subsettings and settings.

This matrix has already been commented on above (cf. 20-21.) Its significance is complicated by our remarks on Matrix #15.

The general form of this matrix will be central to our comparisons of Follow Through and nonFollow Through children in the 1971-72 phases of this research.

Matrix #17, Task criteria and judges.

This matrix is meant to pertain to who actually applies the criteria for solution of a task, the solutions of the task varying from one to many along a convergent-divergent dimension (not quite identical with maintenance complexity as in #4). At first it seems very difficult to differentiate with this the several classrooms we have observed so far, since the teacher's application of criteria has appeared to be so pervasive in all of them, only less so to some degree in Bank Street. There is also the difficulty of taking into account the varying maintenance complexities of different tasks, assuming that teachers and the children themselves would weight these in judging the merits of different task solutions. Let us suppose that some formula could be developed to deal with this latter problem. We then would want first to distinguish between those solutions, large or small, that teachers alone judged, those judged by both teachers and students, those judged by students alone, and those not judged at all. If we look closely enough in our behavior stream records we can in fact find instances of all these possibilities. Two further questions then arise. How many of the solutions meet the teachers' criteria, and under what conditions? How many of the solutions meet the childrens' criteria, again under what conditions? The latter question will be particularly difficult to operationalize, for, to some extent, we may be dependent upon the teacher's interactions with the children to find out what the children are trying to accomplish. Clearly this will be a function of the extent to which a teacher's or sponsor's model of instruction generally encourages the teacher to relate her interaction to a child's perception of his task. Where the teacher and a child actually adjust their criteria to each other's expectations, a solution could be rated mutual

and would thus correspond to the category self with other pupils as peers or teacher as participant. Some readers of this document will believe that the judgment of the teacher alone is most important in the classroom, others will value most the judgment of the child alone, and still others will value most the mutual judgment of the child and the teacher or the child and his peers. The matrix should have the capacity to describe the occurence of these different forms of judgment without prejudging the value of any of them.

On the definition and construct validity of "autonomy."

While we have had much to say about autonomy up to this point, it has been stated in the context of our general theory. Without repeating details unnecessarily, we shall summarize here our argument for the definition and construct validity of autonomy.

Once again we shall repeat our stipulation, and now confirm it as our central definition, "An individual's autonomy has generally to do with his initiating activities or tasks and social interactions, his regulating his own part in these according to information and standards that he comprehends and accepts, and his terminating and evaluating them in accordance with his own priorities and criteria that, again, he comprehends and accepts, or perhaps indeed generates." Each of our matrices now contributes to the operationalization of this definition. The basic matrix asserts that a learner is more autonomous as his activity in a learning environment involves more personal construction of both the knowledge and the social orders, and less sheer conformance to external authority in either of these orders. The backup matrices suggest the specifics of pacing, motivation, evidence required of pupils' learning or productivity, task maintenance complexity, feedback, major and minor structuring of activity episodes, materials complexity, physical movement, cognitive quality of learning, explicitness of instructions, group quality, task interactions, personal-social interactions, initiation of interactions, on-task and off-task behavior, task criteria, and task judges, that autonomous behavior must relate to in a learning environment. We can say that a capacity for autonomy in learning environments has been learned or developed to the extent that an individual has internalized the expectations appropriate

for autonomous functioning in different settings or subsettings, and that he has mastered the performances necessary for this autonomous functioning. This capacity, compounded with the individual's traits or other characteristics, may further result in an individual's seeking to change the conditions of a given setting so as to make possible still more autonomous functioning. Finally, this change sought by an individual might well include more direction or prescription, not just less, if he correctly realizes that some conditions of a given setting are not conducive to his functioning autonomously.

We have presumed that more internal control of behavior is required of the individual as the conditions of the learning environment move away from the point of origin on each of the matrices. In general, the complexity of the conditions that the individual must cope with increases with this movement, and, indeed, it is the difficulty of programming individuals' behavior for more complex situations that makes autonomous roles for them more rational in these situations. This observation is necessary to understanding why we have consistently maintained that the potential for autonomy may be highest in the independent group. Of course, autonomy is, from a more comprehensive standpoint, highest in the learning environment that allows the individual to move in and out of groups, or to work together with others or alone, according to his goals. Leaving this aside, however, and just comparing the behavior of the individual alone and of the individual functioning in a group, a more advanced quality of autonomy seems to be demanded, if not always possible, in the group than in the individual's functioning alone. In the first place, the differentiation of both formal and informal roles in the group can lead to a sharpening of individuals' expectations and performances. In the second place, there are strong empirical and theoretical reasons, most clearly delineated perhaps in Piaget's (1935) research on the

development of moral judgment, to suppose that individuals are most likely to realize in the context of peer groups their capacities to construct, with others, the rules or norms applying to their behavior. As we have stated more than once above, these expectations of ours can be examined empirically in our own research and can be revised where the evidence requires revision. A major complication might be that in some classrooms that stress the individual more than the group, particularly EDC's, the emphasis on the learner's autonomy might be more thoroughgoing than in classrooms, like Bank Street's, where the higher potential of the peer group is mitigated by the teacher's exerting greater control over classroom groups, resulting in a pull back to the more class-like conditions of the traditional classroom. We might relate to this Devereux's (1970) finding that children with low ego strengths are more likely to conform to peer pressures to deviate from generally accepted social norms, and Devereux's general conclusion that gains in autonomy vis-a-vis adults resulting from peer group participation may be counterbalanced, particularly for some children, by losses vis-a-vis the peer group, especially in early adolescence. Still another consideration is the age of the children, bearing in mind the identification by Piaget and others of ages 11 or 12 and following as the most critical years for the effect of peer groups on the development of moral autonomy. It is because of our interest in these questions particularly that we have elected to observe Gotkin's Interdependent Learning Model classrooms, where considerable attention seems to have been given to the autonomy of children in independent and dependent groups.

Our argument for the validity of the construct autonomy is two-fold. First, we think our relating our initial definition of autonomy to the various dimensions of learning environments reflected in the matrices makes it possible for us to use the construct consistently with virtually all of the explicit uses that we have encountered in the theoretical and empirical literature on autonomy. Many of these uses, for example by Beller (1955)

and Erikson (1963), have been confined chiefly to one or another region of the total domain of possibilities represented by our matrices. Others, for example by Durkheim (1949), Maccoby and Zellner (1970), Maslow (1962), and Piaget (1935), have been couched in more evolutionary or developmental terms that relate to more than one region of the matrices. We will be examining the proposition that different degrees and modes of autonomy are associated with different regions, perhaps in a developmental sequence that corresponds to positions on the diagonal of our matrices.

A more difficult aspect of this first argument for the validity of our construct must deal with the question, how does the construct autonomy relate to other constructs, generally "personality" constructs in the widest sense that recognizes both learned and not-learned components, which have been used to characterize or interpret the consistent behavior of individuals? The distinctions between autonomy and the two personality constructs that have been most commonly related to school behavior, intelligence and creativity, should be self evident at this point, and it should be possible to test empirically, say next year, our expectation that children varying in intelligence and/or creativity behave in consistent autonomous or nonautonomous ways in controlled settings as a function of previous experience (possibly interacting with intelligence and/or creativity) in learning environments generally characterized by relatively autonomous or nonautonomous expectations and performances. Consider autonomy, however, in relation to the following set of individual characteristics that Emmerich (1968) classifies as "social motives:" abasement, achievement, affiliation, aggression, anxiety, autonomy-independence, curiosity, defendance, deference, dependency (attachment), dependency (instrumental), dominance, and nurturance. First, one could add still other constructs of this order to the list, for example, cooperativeness. Next, one must recognize that in relating autonomy to virtually every dimension of learning environments that we have thus far identified, we

have either over-extended the construct or we have found a way to relate it systematically to a variety of constructs, some of which might relate more specifically to some of these dimensions than to others. Naturally, we prefer to think that the latter is the case, and that the effects of, say, achievement or affiliation or aggression tendencies on autonomous behavior in one setting or another could yield to investigation. This applies as well to a second set of characteristics identified by Emmerich (ibid) as "general dimensions of personality" at what he construes as a more molecular level of behavior: withdrawn vs. involved, masculine vs. feminine, tolerates frustration vs. vulnerability, rebellious vs. compliant, expressive vs. restrained, tense vs. relaxed, oriented toward adults vs. children, sensitive to others vs. self-centered, submissive vs. dominant, active vs. passive, apathetic vs. energetic, etc. At the present time we can only take cognizance of the problem these constructs present. Some may be validly subsumed under autonomy, and others may independently relate to it, but we must defer to the next stages of the project a serious examination of these questions. Our adding "cooperativeness" to Emmerich's first set is not done casually. We recognize increasingly that this construct might be very important to relate to, and distinguish from, autonomy in our Follow Through research. It can be anticipated that a role definition of what is learned would be as productive for our thinking about cooperativeness, or cooperation, as it is for our thinking about autonomy. We are almost certainly collecting data this year that can be analyzed from the standpoint of cooperation, and the design for next year could explicitly focus on cooperative behavior in learning environments.

The second argument for the validity of the construct autonomy is that our definition of autonomy, including the specification of learning environment conditions that autonomous behavior potentially relates to, seems, from our pilot study, to predict differences in classroom settings and behavior in these settings that correspond to the differences in

the Follow Through sponsors' own positions on autonomy. These differences are commented on extensively in our discussion of the matrices, above, and in the analysis of the behavior stream records, below. The Englemann-Becker emphasis on skill mastery as a prerequisite for autonomous learning, and their correspondingly low emphasis on autonomy during the stage of teacher directed skill learning represented in the Englemann-Becker second grade, contrasts markedly with Bank Street's subordination of skills to a meaning or problem solving approach that emphasizes sources of feedback other than, or at least in addition to, the teacher. This contrast, which Maccoby and Zellner comment on, should not be drawn so as to exclude variations at either end, and indeed our matrices seem to be capable of discriminating quite finely between traditional, Englemann-Becker, and Bushell classrooms on one side, and Bank Street, EDC, and Gotkin classrooms on the other, presuming the accuracy of descriptions of EDC and Gotkin classrooms that we have not actually visited at this time. Even more convincing evidence for the power of the matrices may be their capability of interpreting situations disfunctional for the form and degree of autonomy expected by one sponsor or another, for example, the effects of a Bank Street teacher's dominating major structuring, the effects of the Bushell program's not giving greater control over minor structuring to pupils, or, if we should see this in a Gotkin classroom, the effects of independent peer groups' being restricted to teacher prescribed game rules rather than rules constructed by the groups themselves. In the same vein, the EDC-like emphasis in our pilot study Bank Street classroom on manipulable materials for individual and small groups learning, and the corresponding de-emphasizing of the out-of-school group tasks that seem to us to be more at the heart of the classical Bank Street model, suggest the empirical confirmation of different models and their variations that our specification

of learning environment dimensions makes possible for us.

Our references to the behavior stream records in different sections of this report might be construed as little more than anecdotal evidence, given the statistical limitation of our analysis of this data from the pilot study. However, three of the five columns of behavior setting data from our all day setting observations in each of the four classrooms have been translated into our own modifications of Gump's categories and have been ordered in a set of tables that suggest striking structural conformations of the classrooms to the sponsors' positions on autonomy.

(See insert following.)

In Table 1, 2, and 3, the classrooms are ordered in the direction of their theoretical commitment to autonomy in learning at the second grade level. Our reason for placing the Englemann-Becker classroom after the traditional has to do largely with the greater emphasis of the Englemann-Becker model on rational instruction, including programming and the use of positive reinforcement. However, the Englemann-Becker classroom, through the use of both assistant teachers and the head teacher in dominant roles in class and section groupings, actually increases the degree of teacher direction in the classroom. Considered alone, the data in Tables 1, 2, and 3 argue, if anything between these two classrooms, that the possibilities for pupils' autonomy were even more limited in the Englemann-Becker classroom than in the traditional.

Table 1, Distribution of the Pacing Categories Across 4 Different Classroom Settings, orders the pacing categories from external to mutual along a dimension of differentiation and integration of the learner's pacing, or what was labeled above (p. 28) "intensity" of pupil pacing. In the traditional classroom external pacing was alternated with self pacing for individual students, as they were taught in the whole class or

Insert

The Derivation of Tables 1, 2, 3, and 4

The percentages entered into the cells of these tables were obtained by the following procedure:

(1) An observer using Gump's (1968) category system coded each spatial aggregate of pupils within a classroom every 5 minutes.

(2) Within a 5 minute cycle all the aggregates of the class had been coded once.

(3) This 5 minute cycle was repeated six times during a half hour phase, at which time the observer was replaced by another observer who continued this format.

(4) This procedure resulted in a day-long record of classroom subsettings (i.e. physical and social contexts in which activities occurred.)

(5) A Pupil Occupancy Time percentage was calculated for each category over this day-long record.

(6) The POT percentage was based on the number of pupils and the time they were exposed to (or occupied) each category over the day. This POT data was transcribed into the revised categories of the relevant matrices. Thus each percentage in the cells is a POT percentage statement.

Table 1

Distribution of the Pacing Categories across 4 Different Classroom Setting

PACING	Traditional	Englemann-Becker	Bushell	Bank Street
External	52%	62%	12%	11%
Combination	0%	0%	45%	16%
Self	34%	19%	22%	24%
Mutual	0%	4%	5%	36%
transition	14%	15%	16%	13%

Each figure recorded in a cell represents the percentage of time pupils from different classrooms were exposed to the categories of pacing over a complete school day.

Pacing is the dimension which denotes the sources of control used to influence the rate and order of pupils' performances.

Table 2

Distribution of the Group Quality Categories

Across Four Different Classroom Settings

	Traditional	Englemann-Becker	Bushell	Bank Street
Class	34%	23%	0%	9%
Section	21%	48%	2%	0%
Partition	32%	0%	0%	0%
Cluster	0%	0%	59%	9%
Tutorial	0%	0%	3%	6%
Contain	0%	13%	18%	42%
$Group_d$	0%	.5%	1%	6%
$Group_i$	0%	0%	.5%	14%
transition	13%	15.5%	16.5%	14%

Each figure recorded in a cell represents the percentage of time that pupils from different classrooms were exposed to a particular category of grouping. The Group Quality categories increase along a dimension of differentiation and integration between class and independent group.

Table 3

Distribution of the Teacher Role Categories

Across Four Different Classroom Settings.

Teacher Leadership	Traditional	Englemann-Becker	Bushell	Bank Street
Instructor Action Director Reader Tester	33%	11%	4%	8%
Recitation Leader Task Regulator Demonstrator	22%	57%	7%	0%
Supervisor	0%	0%	47%	8%
Tutor	0%	0%	2%	7%
Watcher Helper	0%	12%	12%	34%
Participator	0%	0%	2%	15%
Not in Segment	32%	4%	9%	14%
transition	13%	16%	17%	14%

Each figure recorded in a cell represents the percentage of time pupils from different classrooms were exposed to a particular Teacher Role. The Teacher Roles diminish in potency or intrusiveness between Instructor (or lecturer) and Not in Segment.

Table 4

Distribution of the Teacher Role Categories for all four school settings across various categories of group quality.

	Class	Section	Partition	Cluster	Tutorial	Contain	Groups	Groups
Instructor* Reader Tester*	80%	20%	0%	0%	0%	0%	0%	0%
Action Director	100%	0%	0%	0%	0%	0%	0%	0%
Recitation Leader Task Regulator Demonstrator	0%	100% 100% 100%	0%	0%	0%	0%	0%	0%
Supervisor	0%	0%	0%	100%	0%	0%	0%	0%
Tutor	0%	0%	0%	0%	100%	0%	0%	0%
Watcher Helper	0%	0%	0%	±10%	0%	±55%	35%	0%
Participator	0%	0%	0%	0%	0%	0%	0%	100%
Not in Segment	0%	0%	50%	0%	0%	±30%	±5%	±15%

* Not observed in the 4 pilot classrooms.

For example, 80% of the watcher helper role for all schools occurred in the Contain, while 20% of the time it occurred in the Section.

in a section and at other times were grouped for assigned work in a partition. Englemann-Becker children spent still more time under external pacing conditions, and were self paced for less time in a cluster. In the Bushell classroom combination pacing was modal, and in the Bank Street classroom mutual pacing was modal. This last finding contradicts our first, superficial impression of the Bank Street classroom, which resulted from our thinking of group activity in a Bank Street classroom as more oriented to out-of-school explorations, and our not noticing immediately the number of groups that had formed around the manipulative materials within the classroom. Quite possibly the mutual figure is inflated for the Bank Street classroom. The pacing was sometimes coded mutual when children were sharing materials closely and yet did not have a shared task with differentiated roles. It is conceivable that this formation of proto-groups as well as more authentic groups occurs similarly in an EDC classroom, more than the highly individualistic rationale of EDC suggests. Perhaps it is significant in this connection that the English tend to speak of their model for the modern primary school in terms of an "integrated day" rather than an "open classroom," suggesting all the conditions that we have associated with a more integrated learning environment.

Table 2, Distribution of the Group Categories Across 4 Different Classroom Settings, orders the pupil groupings from Class to Independent Group along a dimension of increasing differentiation and integration of the group quality of the pupils. Again the traditional and Englemann-Becker classrooms are fairly comparable. The cluster was modal for the Bushell classroom, and the contain, within which was formed a variety of dependent and independent Groups, was modal for the Bank Street classroom. The constancy of the time spent in transitions in the several classrooms

is remarkable. That the figures for this in Table 2 (and Table 3) do not exactly square with the figures in Table 1 results from our having obtained them from substraction from 100% of the occupancy time to be accounted for. Some subsettings were not immediately coded transition at the time of observation because of our confusion about what was taking place. The transitions took rather different forms in the different classrooms. In the Bank Street classroom, for example, the longest transition occurred at the beginning of the school day, whereas there was virtually no transition at the start of the Bushell classroom day.

Table 3, Distribution of the Teacher Role Categories Across 4 Different Classroom Settings, orders teachers' roles from Instructor (or lecturer) to Participant along a dimension that might be labeled teacher potency or teacher intrusiveness. The tutoring role might be considered highly potent in terms of its bearing on the individual learner, but it is also, at least in intent, highly responsive to the individual learner. The distribution of more and less potent or intrusive teacher roles across the classrooms conforms strongly to our general expectations. The high figure for "not in segment" in the traditional classroom reflects the teacher's withdrawal to sections, a circumstance avoided in the Englemann-Becker classroom by the presence of several assistant teachers and teacher aides. There were several assistants and aides also in the Bushell classroom, and one assistant teacher and a part-time aide in each main setting of the Bank Street classroom, the pupils' spending part of their day in each of two rooms across the hall from one another.

Table 4, Distribution of the Teacher Role Categories for all 4 Classroom Settings Across Group Quality Categories, shows the high interdependence of these sets of categories as we have defined them. Parallel analyses of the Group Quality and Pacing categories, and of the

Teacher Role and Pacing categories, would also show a high interdependence of the categories. Are these interdependencies merely an artifact of our definitions or do they represent a true covariance of the several dimensions involved in the categories? We think the latter is more the case, although it is likely that, in our initial use of the categories as they were being developed, we typed teachers' roles in one subsetting or another somewhat more categorically than we would have with the more discriminative use of the categories that is now possible for us. Teachers' roles, and by implication pupils' roles, both constrain and reflect the possibilites and limitations of different group qualities and pacings in a learning environment, as the group quality and pacing themselves affect one another. The teacher roles were in fact specified by us after we had altered Gump's original pacing categories but before we had altered the grouping categories. We found Gump's original set of teacher leadership categories inadequate for our differentiation of teacher roles we were observing in the classrooms, and only later fully realized the systematic relationship of these roles to pacing and group quality. Some of the roles we observed do only occur in certain groupings as we have defined them. For example, task regulator is distinguished from supervisor in that the first applies to a teacher regulating by external pacing pupils' activity on individual or own tasks and the second applies to a teacher supervising by combination pacing pupils' activity on individual or own tasks. The task regulator role is associated in our data with the section, in which pupils have a common task (though each has his own materials), and the supervisor role is associated with the cluster, in which the pupils have different tasks in a same concern. The pupils' having different tasks in the cluster nearly precludes the teacher's regulating their activities by strictly external pacing, or, to put it differently, if the teacher did

attempt this we would be inclined to say it was disfunctional or irrational. Still, this combination is logically possible. Similarly, it is logically possible that a teacher would combine a supervisor's role with pupils' activity on a common task, a situation closely analogous to administering a test and allowing every individual as much time as he needs to finish each item before going on to a next item. Though this situation might occur with some frequency in some classrooms, we did not observe it in our exemplar classrooms. Again, the supervisor's role, which involves the teacher's moving systematically among the pupils to combine her pacing with their own, is logically possible in the contain, where pupils' activities are likely to be spread out even more across different concerns. However, this would not be the most rational fit to the very different feedback needs etc. one might anticipate for different pupils in such a grouping, and we did not observe this combination either. We did observe some use of the watcher-helper role in the cluster, though it is associated mainly with the contain in our data. This presumably reflects the spread of feedback and pacing requirements in the cluster at certain times, or a style difference among different teachers' responses to the cluster conditions. The match between the tutor role and the tutorial grouping is clearly an artifact of our definitions. However, the positions of these two categories in the Teacher Role and Group Quality dimensions respectively reflects the fact that tutorials in the classrooms we observed were most closely associated with the cluster and the contain. This empirical finding is consistent with our theoretical interpretation of the relative teacher potency of the tutorial and the combination character of its pacing. Finally, the participant role for a teacher is only associated with independent groups in our data, though logically a teacher could participate in, say, a cluster, by working a problem sheet of her own in a manner that was meant to provide

feedback and pacing for the pupils working their different problem sheets at the same time.

No doubt we have much further thinking and data analysis to do with repect to these matters. Nonetheless, our general finding that certain teacher roles, group qualities, and pacings are associated with one another matches Gump's earlier finding, and the matrices greatly clarify for us why these associations occur. That our quest for patterns of autonomy in different learning environment has led us this far may be the strongest testimony to the validity of the construct autonomy as we are defining it. It seems appropriate at this point to repeat a quotation from Wehling and Charters (1969), first cited by us in our proposal for the current research:

> While it has not been our purpose to investigate the point closely, a number of observations made in the course of the study show that statistical interdependences do exist among certain of the dimensions, despite their "substantial independence." .... Specifically, the dimensions of Subject-Matter Emphasis, Emotional Disengagement, Classroom Order, and the Teacher Direction pole of the Autonomy-Direction dimension appear to hang together. The dimensions of Personal Adjustment Ideology, Consideration of Student Viewpoint, Student Challenge, Integrative Learning, and the Student Autonomy pole of the Autonomy-Direction dimension also may form a cluster, and there is an occasional suggestion that this cluster may be negatively related to the first. Thus the nature of the dimension interrelations hint at the presence of an important underlying theme--a fundamental continuum roughly described as teacher-centered vs student-centered orientations--according to which teacher beliefs may be ordered. (1969, p. 22.)

Behavior Stream Validity - David Jackson

The following discussion is a first attempt to establish the validity of the behavior stream observations. There exists the possibility that a specimen record of one child in a classroom will not contain information about those general aspects and structures of the classroom which all the children encounter. Naturally in a classroom with a wide variety of subsettings the experiences of all the children in a classroom will not be exactly the same. Nevertheless, we expect some degree of similarity. With a behavior stream, there is also the possibility that the recorded behavior of a child will vary wildly from one day to the other, though the situations he encounters remain relatively constant. In this case the identity of the child becomes problematic.

To pursue these methodological problems the following six questions have been formulated.

1) Do two children in similar subsettings of one program experience similar expectations? That is, does the sponsor's program design manifest itself in the classroom and is it felt in a similar fashion by two children in the classroom?

2) Do these two children demonstrate behavior consistent with the program's expectations as manifested in the structure of the subsettings?

3) Do these two children demonstrate behavior consistent with the structures of the environment, not explicitly expected by the program?

4) Do children in different programs experience different expectations consistent with those programs' attitudes toward "autonomy?"

5) Do two children in a given program exhibit consistent idiosyncratic behavior across different subsettings?

6) Do two children on two different occasions each exhibit behavior consistent to a given subsetting?

A test of the validity of the behavior stream observations requires that the answer to each one of these questions be yes.

A reservation concerning the data must be stated. The technical problems in recording and transcribing, the limited sample, and the lack of sufficient time to code all limit the thoroughness of this attempt to establish validity. This discussion does, however, define, albeit nonstatistically, how validity will be established with the data to be collected this spring. All of the observations detailed below are taken directly from the children's behavior stream records.

Question 1: Do two children in similar subsettings experience similar expectations?

Each program strives to structure the learning environment so that the children will perform in accordance with the program's definition of learning. Let us examine how in three subsettings from each program the children encounter the program's expectations. The expectation descriptors will be taken from selected matrices in the general system of Learning Environments and Behavior.

From the Englemann-Becker program we have selected from the all-day observations of two children: 1) the first fifteen minutes of the day 2) a math lesson, and 3) independent seatwork period. During the first fifteen minutes both children were subject either to a continuous series of instructions or to questions which called for physical movements or verbal responses. (Matrix 3) Correct responses to simple repetitive tasks were

signalled exclusively by the teacher. (Matrix 4) The teacher determined when breakfast should begin and end and when the physical exercises would begin and end. The teacher also directed the beginning and ending of each particular exercise. (Matrix 6) Both children were directed to perform large muscle activities, the cognitive complexity of which was largely elemental. (Matrix 7) Finally, both children were grouped with the whole class which received directions as a class and not individually, and interactions were confined to teacher-pupil task interactions. (Matrices 10-14)

During the math lesson in the stall both children were subject to continuous questions from the teacher which called for either continuous mass responding, or for brief intervals, individual responding. (Matrix 3) Correct responses were signalled by the teacher, who occasionally presented on the blackboard an algorithm for the correct (subtraction) mathematical rule. (Matrices 4 and 17) The questions were answered by a recitation of previously learned mathematical facts, often involving number sequences, and by applications of the algorithm to very simple presented problems. (Matrix 9) Entrance into the lesson, termination of the lesson, the beginnings and endings of episodes within the lesson, and how fast the pupils would proceed within the episodes, were all decided by the teacher for both children in their respective sections. (Matrix 6) All the children in each section were required to listen to the oral instructions and questions of the teacher and to respond orally and with finger counting at her signal. The problems were sequenced in that they were programmed to require a "next step" application of a just previously learned rule to one problem at a time, rather than, say, an application of several rules to a cluster of systematically varying problems (patterned). (Matrix 7) The group quality was a section, with the teacher eliciting a high rate of teacher-pupil learning task interactions and a low

rate of both task and personal-social pupil-pupil interactions. (Matrices 10-14)

During the independent seatwork period that followed section lessons, a"contain"because the children at that point had different tasks and the teacher was potential, both children had almost no teacher contact and were therefore self-paced. They were, however, expected to do the seatwork for the next day and thus to maintain a moderate rate of performance. (Matrix 3) Two of the seatwork exercises involved mainly copying from the blackboard or a duplicated worksheet, for which the material to be copied provided immediate feedback, plus words to be interpolated in blank spaces, for which the feedback would presumably be supplied later by the teacher's corrections. Feedback for the math problems dictated at the end of the section lesson(s) would be provided by the teacher's later corrections. The word tasks were one step or repetitive, while the math tasks were one route, several steps to a single goal. (Matrix 4) The teacher directed entrance into and exit from the subsetting, but the students themselves determined their movements from one assignment to another and paced their activity from one problem to another in each assignment.

The Englemann-Becker program as experienced by two children can thus be seen to structure an environment primarily with high external controls (pacing, feedback, structuring decisions, group quality,) with expectations of high learning rates (evidence of learning, high teacher-pupil interactions,) and with emphasis on elemental and skill learning, the latter overlapping with the application of learned rule to simple problems. The desire for effective high teacher control is linked to the division of the learning tasks into small immediately testable units that can be presented one at a time to

the child. How the children react to this environment will be discussed in question two.

For the Bushell Behavior Analysis Program we have selected from the all day observations of two children two handwriting periods each, and one math period each. (Both of the children entered directly into their first period clusters on coming into the room in the morning, and thus the characteristics of the environment described below apply equally to the first 15 minutes in school.) During the handwriting and math periods both children were provided with the opportunity to progress at their own rate through the materials, this rate moderated by the teacher's circulating around the cluster to combine her pacing with their own. The resultant combination pacing was accomplished by the teacher's systematic application of positive verbal and token reinforcements. Steady work was rewarded with a gradual accumulation of tokens distributed by the teacher. These tokens were then used to buy activities during the following spend or play period. This combination pacing is designed to ensure steady work, with the teacher requiring frequent, though not continuous, evidence of the children's work. Only this frequent evidence will result in an accumulation of tokens. (Matrix 3) In math and handwriting both children consulted correct examples in their programmed texts or, occasionally, called the teacher over to determine the correctness of their work. The task in both these areas was structured into short repetitive or sequenced steps with no apparent larger goal except the movement through the workbook. (Matrix 4) The children's perception of this goal was indicated by their frequent comparisons of their positions in the workbooks with other children. Major structuring was determined by the teacher except for 1 out of 5 work periods, when the child chose which area he wanted to work in; both subjects observed chose handwriting for their elective earn

period. Minor structuring was minimal, since the children's actions were largely dictated by the workbooks, though the involvement of self-pacing in the combination pacing did give the children some control over minor structuring. (Matrix 6) The children primarily did written work with some verbal interchange with the teacher, including for both in the math cluster several prototutorial interactions of a minute's duration or longer. The handwriting was primarily a repetitive task, while the math work was more sequenced. The math tasks became more complex as a child progressed in his book, but both children were instructed not to jump ahead in the book beyond the point where they had completed all the problems presented. The teacher-pupil task interaction rates in these clusters were substantially lower than those in the Englemann-Becker sections, though still relatively high compared to rates observed in the contain and group situations of the spend periods. (Matrix 10) The pupil-pupil task interactions were higher than in the Englemann-Becker sections, as were the pupil-pupil personal-social interactions. Again, these interactions were lower than in the contain and group situations.

The Bushell program can thus be seen to structure the environment to allow somewhat more pupil control than the Englemann-Becker program. This control combined with the desire to ensure steady accumulation of academic skills is linked to sequenced programmed texts with close supervision. The pacing, feedback, structuring, and grouping are all rationalized to provide somewhat more individualized instruction than Englemann-Becker, though with respect more to the pace than the quality of the children's learning. How the students react to these structures will be discussed in question two.

For the Bank Street classroom we have selected from the all day observations of two children the math period and the first fifteen minutes. We

will also report our analysis of one child's activity with a balance. During the math periods both children had a problem sheet and Stern Blocks to help them answer the worksheet problems. The boy was sharing the blocks with another child, with still other children present and the teacher potential, while the girl was working in a cluster with a teacher present. The boy's self-pacing was modified by the sharing of the blocks. He was not required to show evidence of learning until finished with the problem sheet. The girl, however, needed help frequently and had to demonstrate her understanding or lack of it to the teacher. (Matrix 3) Both children had the possibility of two or three methods of working their problems. The boy was skilled enough to let his manipulation of the blocks guide his solutions. The girl repeatedly needed to consult the teacher to see if she was right. (Matrix 4) Both children were directed to begin their math lesson. Minor structuring was coded combination for the girl, since the teacher regularly suggested specific moves to the child, and self for the boy, shading into mutual because his use of the blocks was influenced by his partner's use of the blocks with him. (Matrix 6) Both children's cognitive tasks were potentially patterned. If a child could not solve one problem, he could move on to another to understand the pattern and then return to the first problem and solve it. For both children also, about half their time was spent writing and half was spent manipulating the Stern blocks. (Matrix 7) The boy was in a contain and the girl was in a cluster with the teacher. (Matrix 10)

During the first fifteen minutes, both children experienced exactly similar structures. For five minutes they were self paced with no expected performance (Matrix 1), did not work with materials (Matrix 4), were not directed into any activities (Matrix 7), and were in a contain (Matrix 8). During the next ten minutes the teacher conducted an opening circle with the whole class. The pacing was combination with little expected evidence

of learning. They both watched as another child manipulated an attendance chart. Their task was to figure out if there were more boys or more girls present that day. They also asked the teacher many questions about a bird sculpture someone brought in. (Matrix 4) During this period which the teacher initiated, the children modified both the teacher's major and minor structuring with their questions. (Matrix 6) The cognitive structure of the attendance chart was patterned and the bird an abstracted natural complex, (This definition recognizes that the bird structure is only a representation of life.) and the group discussed the relationships in the materials. (Matrix 7) Both children were in a class. (Matrix 10)

This analysis illustrates our finding that the structures of the Bank Street classroom are more varied than either Englemann-Becker or Bushell. Therefore, there is less common experience among the children in the classroom. Yet both children worked patterned problems with manipulative objects, had to do math when told and began the day in the same way. The differences can be accounted for by the greater competence exhibited by the boy and his consequent freedom from intensified teacher instruction. In Bank Street the limits of our data are most manifested. With a larger sample we might expect to see the girl in math situations in which she is more competent and the boy in those where he receives intensive teacher instruction. This was in fact the case in the two children's language arts activities observed by us on the same day.

Question 2: Do these two children demonstrate behavior consistent with the program's expectations as manifest in the structures of the subsettings?

The discussion of question one provisionally revealed how the specific programs' designs were felt as structural constraints on children in a subsetting. This discussion will demonstrate, again provisionally, how children's behavior conforms to these structures.

In the Englemann-Becker classroom during the breakfast and exercise subsetting a high rate of evidence of learning is observed. Each statement by the teacher is repeated upon request by either one child or by the entire group. The same procedure is observed during the math lesson. During 30 minutes the group as a whole make nearly 200 responses, each constituting an external evidence of learning. The behavior stream records each child responsing in chorus to the questions of the teacher. Also recorded are statements of the relevant rule, again upon request. The teacher repeatedly states "Good thinking", "yes, that's right", or "No, let's try it again", indicating that her verbal statements serve as feedback. Both children participate in the section and as expected have a high rate of teacher-pupil interactions (200/30') and a low rate of pupil-pupil interactions. (0/15', 0/15', 1/15', 1/15')

During seatwork period the change in structure results in different observed behavior. The students emit virtually no verbal responses to the teacher and virtually no immediate evidence of learning is required. Effective self-paced activity would predict this result. The behavior streams record both children continually referring to the blackboard or their take-homes to check their papers: behavior expected with presented signs. Minor structuring is also self-paced in this subsetting, though substantially determined by the material prescribed. Hence we observe one child doing boardwork before the take-home and the other doing the take-home first. Major structuring is still teacher determined and hence we observe children leaving the seatwork area before completing their work at the request of the teacher. Group Quality is contain and thus as expected pupil-pupil task interactions are higher than in the section though not as high as one would predict (2/15', 1/15'). Both children are, however, consistent, indicating other possible explanations: hidden structures (see question 3) or carry over from the dominant subsetting.

In the Bushell classroom during the handwriting and math subsettings a

moderate rate of evidence of learning was observed. The teacher would check each student in the cluster about once each minute. Both students were seen to raise their hands to call the teacher or to leaf backwards in their books for past examples as sources of feedback. Both students consulted a sign or, on a few occasions, the teacher when in doubt. Neither student had a choice as to which group he or she would enter, except during the elective earn period (and of course the spend periods). They both also finished as soon as a bell rang. Many instances of students receiving tokens while working were recorded, while not one when a student was off-task. Thus his self-pacing was crucially influenced. In the cluster their teacher-pupil task interactions rates were remarkably consistent. Six separate counts were made: 55/35', 50/32', 40/27', 57/33', 64/31', 22/25'. These figures are quite lower than those recorded for Englemann-Becker in the section (200/30'). The pupil-pupil task interaction rates were also fairly constant:5/32', 3/27', 6/33', 3/25', 0/35', 0/32'. These rates tend to be higher than Englemann-Becker children in the section.

In the Bank Street classroom during the math lesson, both children failed to take advantage of the maintenance complexity. Though they had the opportunity to use the blocks with the problems several ways, (for example, varying the lengths used) they both used them only in the prescribed way (tens and units). One possible explanation can be deduced from the structuring matrix. The teacher plays a dominant part in major structuring and gives detailed procedural instructions (Matrix 8). The behavior streams record the teacher directing the boy to a table and giving him his blocks and directing the girl to a table where the assistant teacher was teaching. Several differences in exhibited behavior are still consistent with the structures they each encounter. The boy is required to give evidence of learning only after he has finished the problem sheets. The girl, however, continually

asks the teacher if that is right. The teacher, too, regularly checks to see that she is answering the problems correctly. Additionally the boy uses his blocks for feedback while the girl needs to consult the teacher. The girl's teacher-pupil task interaction rate in the cluster coincides with those Bushell children in a cluster, 53/35'. Her pupil-pupil task interaction rate is also comparable to Bushell in a cluster, (5/35'). The boy's teacher-pupil task interaction rate conforms to the prediction: low (9/24') in a contain. His pupil-pupil task interaction rate also conforms to expectations, high (26/24') in a contain.

What has been demonstrated? In all three programs the two children in each experience structures designed to obtain certain specific behaviors. The behavior stream records demonstrate that the classroom is to a significant extent a common experience for all children. Each child's experience, as recorded by the behavior stream, is not simply a unique experience. Secondly, both children in each program exhibit behavior consistent with these structures. Similar experiences of similar expectations will lead to similar behavior.

Question 3: Do two children demonstrate behavior that is consistent to the structures of the classroom environments but that is not explicitly expected by the program sponsors?

Whenever a classroom environment is designed to elicit certain specific behaviors, the total effect of this environment on behavior can never be predicted. Insufficient information, gaps in theory, and human error limit the possibility of structuring an environment that will elicit desired and only desired behaviors. In each of the three learning environments we studied students were observed behaving in consistent patterns. Some of these patterns were expected by the program sponsors. (Question 2) Some others, however, may not have been expected. The demonstration that students will react in a con-

sistent fashion to a carefully constructed subsetting in ways not expected by the constructors strengthens the structural argument. A subsetting, once structured and begun, may exhibit certain behaviors, even though teachers, administrators, and program sponsors might not necessarily desire such behaviors.

One example of an unexpected, yet common pattern of behavior was found in all three classrooms. The relevant subsetting has children working on their own materials at their own pace or combination pace in either a cluster or a contain. The materials are standardized in some way. Either all the children have the same programmed text and are on different pages, or they have the same problem sheet and are on different problems. The self-pacing allows the children to occasionally lean over and see where the other child is at. The monitoring of their neighbors, a competing and racing ("I have only three more to do!" "What, you only on page 15!") is recorded in the behavior streams almost every time this subsetting is observed.

In the Englemann-Becker classroom when the children are doing their take-homes, the above type of conversation is recorded. Each student has his take-homes and his board work to complete. As one child finishes her boardwork, she will look to the girl sitting next to her and flash the finished sheet in front of the girl and smile contentedly to herself. In the Bushell classroom programmed texts are used in three of four subject areas, reading, math, and handwriting. In each subsetting the students are regularly comparing their books with what page their friend is on and also how many pages they have just completed with how many their friend has done. At the end of each period the child is, of course, comparing his pile of tokens with his friend's pile. The latter example of competition was, however, probably expected by the sponsors. In the Bank Street classroom this subsetting occurred twice in our behavior streams. During the math

lesson the boy stopped his concentrated work on the problem sheet and counted how many more he had left undone. He then leaned over and counted how many his partner still had undone. He then went back and made an even finer comparison. He checked to see if he had any take-aways, which he hadn't, and then spotted on his partner's paper those dreaded take-aways. This discovery immediately became the occasion for some serious teasing.("Hey, how you like all those take-aways you got?") Later during the reading period this same boy was working in a phonics workbook at a table where a girl was working in the same workbook. Each child repeatedly asked the other, "You got to do this page too?". They had been assigned five or six pages and they were checking to make sure the other one did all the work, or at least as much as the one who was checking did.

Each of the classrooms also had general unexpected patterns of behavior particular to the program. In Englemann-Becker a game-like form of questioning was used to sustain the high rate of question and answer exchange. In reading, the game took the form of the teacher saying, "I'll bet I can fool you this time," or "Who can guess what the next one will be?" In math the teacher would challenge the kids with, "I'll bet you can't do that again," or "Who can think hard enough to do this one?" The need for this betting and guessing game comes from the continual oral questioning. The learning of required skills has been divided into learning a series of mechanical operations. In order to move the child from one operation to the next, the teacher adds the game. Without the game the flow of the choral responses would become drudgery and learning would diminish. There seems to be no intrinsic motivation for repeating the mechanical operations over and over. At times, however, the role of the betting game as an aid to learning the facts becomes subverted. Children were observed purposely answering a question wrong for the joy of seeing the rest of the group laugh and tease him, and both our subjects participated in the laughter. The judgment that the question was purposely answered wrong was

validated with previous occurances of this child answering the question correctly and of subsequent occurances of him answering correctly when the group had bet against him. His motivation, it appears,was fooling the group and the teacher about his own ability. If they expected him to guess right, he'd guess wrong. If they expected an error, he'd answer correctly.

In this particular Bushell classroom tokens were awarded for correct behavior. (In other classrooms the rationale for awarding tokens may be somewhat different.) Correct behavior is not defined simply as answering the problems correctly. Those children whose abilities prevent them from getting every problem right, but who work steadily and make honest mistakes are rewarded as frequently as the bright children. Operationally, this means a child can earn tokens for sitting in his seat, writing in his book, raising his hand and asking for an eraser, counting his tokens quietly, being ready to work, putting his book away when the bell rings, and many other purely procedural and formal behaviors. Thus a child may accumulate a respectable pile of tokens without learning. Learning depends on correct completion of the programmed texts. Both handwriting and math texts are not self-correcting. The teacher is the sole source of feedback. She must continually move from one child to the next in the cluster to check on each of six or seven children. The program emphasizes the number of contacts a teacher has with each child. Any attempt to spend a lengthy interval with one child would reduce both the number of contacts with this child and the remaining children in the group. This reduction might cause a consequent reduction in the pacing and percentage of on-task behavior. Without that steady stream of tokens there would be little motivation to work. This pressure for many brief contacts limits the possibility of the teacher to instruct. All instructions must be given in about one minute. Consequently the instructions tend to be specific to the immediate problem. The teacher shows the child how to work this particular example. What the student learns does not necessarily

help him to do the next problem. He often makes the same mistake on the next problem, and the teacher only has to come back and teach him again. Teaching of general rules and operations occurs to a limited extent.

From the student's standpoint, it makes good sense to keep working even though you don't know what you're doing. By simply filling in the answers and raising your hand for an eraser many tokens will be accumulated. If the student waited until the teacher came by before writing any answers then he would appear to be off-task and no tokens would be forthcoming One of our two children was even observed to fill in the same wrong answers that the teacher had previously erased.

It should be mentioned here that the extent of these unexpected behaviors is not known. They might be limited to this particular classroom. Only two specimen records have been examined. Yet the structural analysis indicates that there are strong reasons why we would expect to find similar observations in the spring data collection.

In Bank Street during a science and measuring period when the children were measuring waists, arms, feet, walls, plants and weighing assorted objects, the teacher found herself giving almost step by step instructions to many children. The children in turn continually found themselves asking the teacher, "What do I do now?" Yet the activities were designed, theoretically at least, to foster student initiative and control. The appearance of this unexpected behavior can be explained structurally. The teacher did all major structuring and hoped to let the children do the minor structuring. This combination, however, would fall off of the diagonal, predicting a disfunctional situation. Speaking more concretely, whenever a child is directed into an activity, no matter how interesting, the activity remains not his own. Self-direction requires a feeling of involvement. The child must have some way of constructing his own concerns, energy, and identity into the activity. This assimilation

of the task to the child's identity becomes difficult when the authority in the classroom prescribes the task.

Further restricting self-governance was the lack of comprehensible feedback. An absence of measuring and recording devices the children could read and work without the aid of the teacher left the students with no guides. The boy at the balance recorded his results in a pictorial graph prepared by the teacher. He needed repeated instruction on its use. The teacher also had to draw up a chart on the spot to record the measurements the girl had made. This could possibly be an example of that situation in which a mismatch between the student's abilities and the structures of the environment impeded an autonomous relationship. The structures of the subsetting were too undefined, and the students became confused. A more prescribed minor structuring, with more carefully structured materials, might have resulted in a more autonomous situation. To draw such wide ranging conclusions from so little data is, of course, meaningless. What we have attempted is to illuminate the avenues for answering methodological problems.

Question 4: Do children in different programs experience expectations consistent with each program's attitude toward "Autonomy"?

Englemann-Becker's second grade program is designed to teach at an accelerated rate those reading, math, and language skills necessary for self-governed learning during the third grade program. Englemann-Becker argue that these skills are necessary prerequisites for children to work independently. The goal for children seems to be the child who can complete long assignments without the aid or instructions of a teacher. Whereas during the first and second years the teacher assumes the child is not learning when the teacher is not instructing him, during the third year the children work by themselves for longer periods of time. The assumption is that the child can use his skills to read materials prepared by the teacher or program staff and learn from his reading.

Correspondingly, the second year classroom environment is structured to teach skills at an exceedingly rapid rate. All pacing, (see Matrix 2,3,6) except while the children are doing seatwork, is external to force rapid response exchanges. Learning groups are kept under ten pupils (see Matrix 10, 11) to allow for maximum teacher control. Math, reading and language skills are broken down into small quickly learned rules and facts, and taught sequentially (see Matrix 4, 7, 8) . Continuous verbal responses are demanded to guarantee continual behavioral evidences of learning (see Matrix 2). The child is, therefore, subject to a system of forces designed to insure a rapid learning rate of those skills the sponsors suggest are necessary to enable the student to work independently during the third year program.

Bushell's Behavior Analysis Program is founded on the belief that children cannot all be taught the same skills at the same rate. Each child comes to school with a different set of skills, which determine where he will begin, and to some extent, how fast he will progress. Children are ready for certain skills at different times. The Behavior Analysis program, therefore, recommends allowing children to move at their own rate through the learning materials. Teacher instructions to children must also be individualized, for each child has a different set of instructions appropriate for those skills he is ready to learn. Group instruction, consequently, is not suggested. All instructions must be to an individual. To facilitate and motivate the child to progress steadily and competently through the materials, a token economy is used. Appropriate behavior is rewarded with tokens that will enable the child to buy interesting backup activities during a spend period. These tokens serve both to signal to the child correct behavior and to

motivate desired behavior. In this way the student learns what is expected and is taught the motivation to perform as expected. As the child learns more skills and becomes more self motivated he will be given tokens less frequently. This process culminates with the child having learned the requisite skills and being able to defer his reward as adults do at their jobs. The child becomes autonomous because he can perform tasks competently and has learned self-motivation. He can work with the expectation of reward, and wait a reasonable amount of time for the reward actually to be given to him.

To correspond to Bushell's emphasis on individualized learning, the classroom environment has been structured to allow the child to progress more at his own rate. Most materials are programmed texts which the child works individually. (Matrix 4,7) Children grouped in clusters, allowing them to work privately and allowing the teacher to distribute tokens to each child at least once each minute. (Matrix 10) Each child is consequently at a different page in the texts. Further supporting the child's individual progress is the availability of the teacher to tutor the child for brief periods if he needs it. This tutoring occurs either at the discretion of the teacher or when the child consults the teacher himself. (Matrix 4) Pacing of the child is thus a combination of his own abilities and present set of skills and the token motivation. (Matrix 2,3,6) The child's learning activities are primarily written to enable him to continue working in the absence of the teacher. These written texts are nearly self-instructing to cut down on teacher instruction to an entire group, further facilitating individually structured learning. The teaching of motivation can also be seen to be geared to individuals. Those children whose low skill level and low motivation combined to limit severely their performance rate were given tokens for 1) sitting down, 2) opening their

book, 3) picking up a pencil, and 4) looking down at the book. Other children who were more advanced would only receive one token instead of four for the same actions. These children were clearly more self-motivated: they needed a lower rate of reward to perform the expected tasks. Other children in the class were even closer to the ideal. They were performing sophisticated tasks with low rates of reward.

Bank Street's theoretical attitude towards autonomy is centered on enabling the child to initiate and participate actively in his own learning. The independence he attains is framed, however, within mutually agreed upon limits of social interaction. The pursuit of personal interests is shaped socially through participation in a community imbued with a spirit of trust and cooperation. Individual activities are encouraged, but not beyond the point where they will interfere with the activities of others. A respect for another's right to work and for the materials of learning will constrain such behavior as loud talking, running, pushing, and destroying another's work. Further individual growth results when students not only respect one another, but also cooperate with them to alleviate personal and academic difficulties. As children engage in these cooperative activities feelings of trust will arise and be supported. Through active participation in a cooperative group, the Bank Street model hopes to instill a sense of community in which individual members autonomously pursue personal goals in harmony with the vital concern for their neighbors. The model recognizes that many students cannot cope autonomously with such an environment, and that the goal of education is to teach children how to cope and influence such an environment. Therefore, those children whose abilities restrict them from working completely independently in an unfettered environment will function most autonomously when the environment is more prescribed. The optimum situation will provide the correct balance between freedom and control to

match the child's abilities. The classroom, then, would have a variety of situations demanding a variety of roles from highly prescribed individual and group work to self-regulated individual activity within a group.

The Bank Street classroom we observed did contain this variety of situations. The/ boy was observed in a contain working with another child. Each had his own math problem sheet. They were to work their problems with a shared set of Stern Blocks, the boys were both allowed to work without the presence of the teacher until they had finished. Consequently many pupil-pupil task interactions were observed and few teacher-pupil interactions occurred. The children's ability to use the blocks allowed them greater autonomy than the girl. She was in a cluster with a teacher. The teacher regularly gave instructions to the girl. Her ability to act autonomously was limited by her need for instruction. The classroom thus provided two different situations to match the different abilities of the two children. The same boy was later observed working on a balance. Here the cognitive complexity was much greater than working a math problem sheet, thus the possibility for more child generated decisions. The teacher's instructions to the boy structured a carefully designed situation. She told him to find three objects that weighed the same as ten popsicle sticks. This instruction prescribed the limits of his activities at the balance, yet permitted many independent judgments for the child. Again, the most autonomous situation exists when there is a match between the child's abilities and the prescription or openness of the environments.

In addition to these examples of individual activity, both children were observed participating in groups. The day began with the children gathered in a circle around the teacher as she introduced a new art project, a bird sculpture. This was coded class by us, but had some of the quality we associate with dependent groups, a situation we might expect to see frequently in Bank Street (and some traditional) classrooms. Both children asked questions

in turn with others about the construction of the sculpture. The teacher would regularly make procedural requests to facilitate full group participation, "Please sit down so those in back can see", "Troy, please move over a little so Joanne can see," and "I can only hear one question at a time". At the close of this question period the teacher instructed the children to look around the room for a lost toy car. Her explanation for the search, which emphasized a community concern for the boy's feelings and a willingness to help him, was presumably intended to foster the growth of trust and cooperation within the community. These proto-group class situations may be expected to result in analogous group participation and group feeling at some future time without the control of the teacher, when the community norms have become internalized. We did, however, notice that the children's responses to the teacher's solicitations were more perfunctory than if they had been fully accepted by the children. A still closer approximation to group functioning without teacher control occurred while the boys were working with a shared set of Stern Blocks. They were able to exchange blocks when it was necessary and to wait quietly when the requisite blocks were not available. At one point, however, the teacher came over to remind the boys that their loud talking was bothering the people working at the next table. The two boys were able to complete their own work while occasionally helping their partner and sharing their materials. We have noticed in the literature on autonomy that the value of consideration for others is consistently clustered with initiative and independence (e.g., cf. Kohn, 1969), and we most frequently saw these explicitly related to each other in the Bank Street classroom. This conforms to the very salient emphasis on these values in Bank Street's statements of their model.

Question 5: Do two children demonstrate consistent idiosyncratic behavior across different subsettings?

This question directly answers the problem of intra-individual consistency. Does the specimen record contain evidence indicating that it is the same child who is observed in different subsettings? If the child exhibits behavior peculiar to that child in all subsettings, then we know it is the same child.

In Englemann-Becker, the boy was consistently quiet or withdrawn. His responses to the teacher's questions in the math group lagged behind the group response and were barely audible. At breakfast and during seatwork he would rarely if ever initiate a conversation, yet he would regularly mutter to himself. In one math group his performance, his grasp of the facts, was consistently below average and he exhibited the described withdrawn behavior. In another math group (The teacher arranged for him to participate in two groups daily,) where his skills were consistently above the average his responses were continual, loud and quick. The girl was much more personable. In the math group and language group she would continually touch the teacher and hug her. When she would answer a question directed solely to her she would beam. At the seat-work table she was occasionally observed conversing with her friend, or showing her work to the teacher-aide monitoring the seatwork area.

In the Bushell classroom the girl, in every subsetting, would be continually telling the teacher what the other children in her group were doing wrong. The boy was continually resisting the teacher. Sometimes playfully and sometimes in earnest, he would slap her wrist, take tokens from her pocket, punch children when told not to, talk back to her. When working, however, his intensity and concentration were remarkable. This pattern of intense off-task and intense on-task activity was consistent.

In the Bank Street classroom, the boy's day went through a regular rhythm. In the morning he was very quiet and withdrawn, almost sleepy. He would not interact with either the teacher or the other children. Even when the class was lined up to go to another room and all the boys were fooling around, he remained quiet and aloof. As the day progressed, though, he would open up. More interactions with the teacher and his peers would be initiated by him and more of the interactions would be social. By the end of the day he would be virtually "uncontrollable" to use the teacher's own description. The girl was regularly observed in semi-covert conversation with other children. The subject of these conversations was not overheard, (Some privacy was allowed!) but it was assumed they concerned personal-social issues among the children. Often when working either with the teacher or a peer, she would attempt to covertly get away with completing the task without being carefully checked. She continually finished the assigned task, quickly fulfilling the barest minimum of requirements, and ran to begin her own activity.

Again these descriptions are only meant as indicators of the type of demonstration possible. They are not conclusive. Each child did exhibit behavior identifiable as peculiar to that child throughout the specimen records. The identity of the child is not problematic.

Question 6: Do two children demonstrate behavior consistent to subsettings in two similar subsettings?

The judgment that behavior is in some sense consistent to the structures and constraints of a subsetting has been attempted in Questions 2 and 3. The further confirmation of this judgment depends upon observing the same behavior in two similar subsettings on two different occasions. Such an observation will provisionally confirm that a given subsetting will consistently obtain similar behavior on different occasions.

In the Bushell classroom two children were observed in two different handwriting periods. In both periods the teacher was observed distributing tokens at about the rate of one per minute to each child. Teacher-pupil interaction rates were remarkably consistent. (55/32', 50/32', 40/27', 57/33') Pupil-pupil rates were also consistent. (5/32', 3/27', 6/33', 3/35') These rates are presumably a function of the children's self-pacing with programmed texts, the token reinforcement, and the interaction possibilities in the cluster. In all four observations the children were working repetitive problems the correctness of which was determined by either the teacher presenting a token or the child referring to the model letter at the top of the handwriting book, both coded as Presented Sign. Behavior from one period to another has remained constant.

In the Englemann-Becker classroom the same consistency was observed. Two children were observed in two different math periods. In both periods the teacher asked a continuous series of factual questions to the section. In both periods, both observed children responded to most of the questions, though one child's responses lagged behind the other's. Teacher-pupil interaction rates in one subsetting approached 200 for thirty minutes, while in the other the rate came to about 110 for fifteen minutes. In both cases the pupil-pupil interaction rates were barely above zero. The teacher remained the sole arbiter of right and wrong answers in both subsettings and she continually made all major and minor structuring decisions.

In the Bank Street classroom only one child was observed in two similar subsettings. The length of observation and the absence of high prescription provide, however, a significant test of the question. The two observations totaled an hour and a half, an hour on one day and a half hour on the following day. The concern was reading but the activities varied considerably. For fifteen minutes on one day and ten on the next day, the girl was working

intensively with the teacher in a group dependent. In both occasions the teacher asked for continuous evidence that the student was learning. In both instances the maintenance complexity was "Many routes to many goals", the materials were patterned and written, teacher-pupil interaction rates were comparable (20/10', 12/15'). During the remaining time the girl chose her own activities and was in a contain. Little evidence of learning was required and consequently teacher monitoring occured only when the girl initiated the interaction. Being in a contain she was self-paced. Her tasks were almost totally self-generated. Her own plan guided her activities except for occasional questions addressed to the teacher for a specific problem. All structuring was pupil directed and the maintenance complexity was many routes to many goals. Her teacher-pupil task interaction rates were similar (31/20', 26/45'). A significant range is expected when the frequency is solely dependent upon the needs and inclinations of the child. When the child is having difficulty the rate will be higher than when she is working competently. Pupil-pupil task rates have similar contours. (23/20', 17/45'). The lower rate for both pupil-pupil and pupil-teacher interactions on the second day may indicate that she needed less help from other sources. What is significant structurally is that both sources of information are much more equal than in a cluster or section. The child consults whoever is at hand. Thus similar subsettings elicit similar behavior.

REACTIVITY OF OBSERVATIONS

The September amendment to the project proposal, "Autonomy in Learning," stipulated that the Columbia Classroom Environments Project (CCEP) would concern itself with the reactivity of its classroom observations. The question can be posed as follows: Do the observational methods employed in the research sufficiently influence the normal functioning of the sampled classrooms so that what is recorded (as the CCEP's basic data) is to some extent an artifact of the situation created by the observations themselves. We have available to us at this point several types of data on this question, all of which suggest to us that the findings of the research will basically result from real differences among the models.

The CCEP employs four different types of classroom observations, each of which has its own particular attendant dangers for influencing classroom life. Behavior stream observations, behavior setting observations, videotaping of selected classroom areas, and the use of a wireless microphone on the teacher and/or aides are the observational methods that have been used.

Behavior stream observations consist of an observer's sitting in the classroom in the general area of the subject and speaking into the microphone of a cassette recorder a common language description of the complete activities of the subject. The dangers here for reactivity are twofold. First, the child may become aware to some degree that he is being watched and talked about and consequently behave in "abnormal" ways. Secondly, the classroom teacher is told beforehand which child is being observed and so it is possible that she might either assign the child to special activities

or give him more attention than normal. We have some evidence that both these sources of reactivity were, in fact, occasionally operating. We are reasonably sure that on one day of our observations in the Bushell school, one child we were watching was kept out of a particular instructional group so that he would not have to interact with one teacher there that he didn't get along with. This is the only instance of a change in scheduling due to our presence that we are aware of. We are reasonably certain that our awareness of normal grouping and scheduling arrangements is accurate, because from our readings of model specifications, our discussions with teachers and administrators in the program, and our week-long familiarity with the school, a whole and consistent picture of classroom operation is built up. In this picture, inconsistencies are glaring.

Do the teachers give extra attention to the children who are subjects of classroom behavior stream observations? Although the data necessary to confirm or deny this phenomenon are not yet available, our educated hunch, based on our reading of a very small sample of behavior streams, is that it is quite possible that in the Bushell and Bank Street classrooms our subjects received a slightly disproportionate share of attention. Our hypothesis regarding this effect, and also the effect of behavior stream observation on the child, is that when a teacher or a child (the subject) becomes aware of the attention of an observer, the subject normally escapes this intrusion by entering more deeply into his standard classroom role. We have seen this effect over and over again. When a teacher, or a child, meets the eye of an observer, that teacher or child will almost always directly thereafter resume his modal response pattern to that situation. Therefore, even though an observer's presence may affect the level of attention shown a particular child, our argument is that the type

of experience we are recording in the classroom will, if anything, correspond more closely to the sponsor's expectations for proper classroom functioning than to any deviation from the model induced by our presence.

The data we have on children's awareness of the behavior stream observer shows, we think, a low level of subject's concern with the observer. A small sample of behavior streams were checked for how often the observer records a child's turning his way, looking at him, or otherwise expressing explicit awareness of the presence of the observer. Such instances would be regularly recorded as a part of the child's activity. Table 1 shows the data:

	Bank Street		Bushell		Engleman-Becker	
Child no.	1	2	1	2	1	2
No. of minutes of observation	69 min.	140	130	107	90	90
No. of recorded notices of observer	4	5	11	22	2	5

In the absence of norms by which to interpret this data, let us reiterate that the recorded instances of "noticing" on the table are almost always just a brief straying of the eyes. In response to this phenomenon, the CCEP observers have learned to do the behavior streams without staring directly at the child, developing the skill of looking out of the corner of the eye. Furthermore, the extent to which a child notices us has always seemed consistent to us with the child's overall behavior in scanning his environment. Child number 2 in Bushell, far and away the most observant of the observer, was continually looking around the room at everybody and everything. Part of our check on the method was to talk informally at the end of the day with the teacher about how the day had gone, and whether she thought the

children under observation had altered their behavior under our influence. Uniformly, the teachers reported that they saw, that day, little or no deviation from our subject's normal behavior.

CCEP's behavior setting observations are a structural mapping of the classroom which necessitate a turn around the classroom by one observer approximately every five minutes or so. The rule we developed from our initial experiences was that we would never have more than two observers at one time in the classroom, and the teachers, aides, and other personnel who work in the schools we have visited so far seem generally quite happy with the unobtrusiveness of our procedures. In all the Follow Through classrooms we have visited so far the levels of involvement, activity, and enthusiasm present in the rooms were high enough to make our intrusion, whether via streams or settings, relatively unattractive of the attention of the teachers and the children. By comparison, when we visited a very restrained and restricted conventional classroom, we found that any activity and/or mobility on the part of our observers attracted a great deal of attention, and so consequently we were forced to adapt by remaining stationary.

The videotape procedures used this past fall were the placement of three stationary cameras, on tripods, in unused spaces in the room so that the activities in certain prescribed areas could be recorded. Our first pretest of the taping taught us the lesson that the monitoring and recording equipment must be completely unavailable to the children, otherwise a game of seeing your pals on TV would quickly develop. As part of the overall introduction and explanation of why we were there, one staff member would talk

to the children about the cameras, allow them to familiarize themselves with them, and hopefully remove the mystery from the technology. Twice, once in Bushell and once in Bank Street, we observed that children clowned around in front of the cameras at the beginning of the day, before the "official" school day had begun. In fact, the observations showed us that the children were more fascinated by the microphones that were placed near the cameras in order to pick up a usable sound track for the videotapes than they were by the cameras themselves. In both instances, once the class was all present and the regularly scheduled activities were underway no further clowning with the machinery was observed during the day.

There are available to us at present two checks on the reactivity of the videotaping. First, we got the opinions of the teachers and aides regarding the effects of the cameras on the school day. Bushell and Engleman-Becker personnel uniformly reported that they felt the cameras weren't affecting their classes. In the Bank Street classroom, where videotaping was a novelty, the teacher reported that the first day of the taping had appeared to upset her class and make the children more prone to various types of unusual behavior. She felt that, by the second day, all had returned to normal. The second source of data on the effects of the videotaping are the reports of one staff member who has been in charge of the initial exploration into the analysis of the video tapes. This staff member reports that of the several hours of tape she has viewed of the Bushell and Engleman-Becker classrooms, she saw practically no instances of attention being directed towards the cameras. In the Bank Street classroom, as previously reported, children were initially attending to our microphones, and this was seen in the tapes that were reviewed. However, the conclusion we must

draw from the aggregate of teachers' impressions and our own review of the tapes is that the stationary cameras, usually placed some distance from the area they are trained on, attract only a negligible amount of the children's attention.

Finally, with regard to the wearing of a wireless microphone by a teacher or an aide, we are aware that different individuals react in remarkably different ways to the procedure. The wearing of the microphone is, of course, voluntary, and the teacher is shown how to turn off the transmitter if she desires to regain her privacy. In the comparison school, this happened several times. The reactions of teachers to wearing the microphone range from almost immediate accomodation to the device with an apparent lack of consciousness of its presence, to visible nervousness that lasts up to one half hour, to an extended period of possible restraint due to its presence. The lesson learned about the use of the microphone is that it must be used with caution, not forcing it on the unwilling, and allowing plenty of time for a subject's accomodation before beginning the collection of data.

The methodology of the CCEP certainly presents the risk of reactivity, and we can anticipate that special circumstances may increase the level of reactivity in one or another classroom. However, the overall judgment of the staff, based on the data currently available, the reports from various school personnel, and our impression as trained observers is that the data being collected is not seriously contaminated by the reactivity of our methods.

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COLUMBIA CLASSROOM ENVIRONMENTS PROJECT TEACHER SURVEY

What follows is a group of questions that we hope, when combined with the classroom observations we will do in your school, will give us a full picture of the school from both the teacher's and child's point of view. The directions for answering the questions are usually given with the question itself. When there is a line following a question, just write in the answer in your own words. Please answer all the questions that you can, but don't feel forced to answer any question that you object to. Your first reading of a question, and your first feelings about an answer, are usually the best interpretation of what we wanted, so you need not spend a lot of time thinking about each question. Remember that your responses are anonymous and that no information about a specific individual will ever be made public. If you are a Follow Through teacher, please answer these questions with reference to your Follow Through program.

---

1. What grade do you teach?_____

2. What is the name of your school?_____

3. For how many years have you been a teacher?_____

4. How many years have you held your current position?_____

5. Many things often influence a person's coming to a particular teaching position. Please circle the number that best represents how important to you each of the following reasons was in coming to your present job.

	Very Important	Somewhat Important	Not at all Important
1. Wanting to work in this program	1	2	3
2. Wanting to work in this school	1	2	3
3. Hearing about the job from acquaintances	1	2	3
4. Hearing about the job from a local agency	1	2	3
5. Assignment to the job by a local education agency	1	2	3
6. Staying on as a teacher in the school when a new program was introduced	1	2	3
7. Other (please specify)_____	1	2	3

_____

_____

6. Below are some of the ways by which a teacher learns how to conduct a classroom in a manner that he himself likes and which is also in accord with the philosophy of the school or program he is working in. Please circle the number beside each item that best represents how important you feel that item was to you in learning how to conduct your present classroom.

	Very Important	Quite Important	Somewhat Important	Not Important
1. Regular In-Service Training	1	2	3	4
2. Special seminars or training sessions prior to beginning the job	1	2	3	4
3. Knowledge gained from other teachers	1	2	3	4
4. Knowledge gained from aides	1	2	3	4
5. Teaching methods courses	1	2	3	4
6. Recollection of your experience as a student	1	2	3	4
7. Supervision and feedback from the administration	1	2	3	4
8. Your readings in books about education	1	2	3	4
9. The reaction of children to techniques you tried out	1	2	3	4
10. Other things (please specify)	1	2	3	4

_____

_____

7. How many children are officially enrolled in your classroom?_____

8. How many children are present in your classroom on an average day?_____

9. How many adults, on the average, work in your classroom?_____

IF YOU ARE THE ONLY ADULT IN THE CLASSROOM, PLEASE SKIP TO QUESTION 14, PAGE 4.

10. If more than one adult normally works in the classroom, please describe below some of the tasks that are primarily your responsibility.

_____

_____

_____

_____

11. Again, if you work with other teachers, aides, or adults in your classroom, would you please describe some things that are primarily <u>their</u> responsibility.

_____

_____

_____

_____

12. In your own words, please describe both the strengths and weaknesses of how teacher(s) and aide(s) work together in your classroom.

_____

_____

_____

_____

13. How satisfied are you with the way teacher(s) and aide(s) work together in your classroom? Please circle the number beneath the answer that best represents how you feel about this.

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4	5	6

14. How often, in an average month, is your classroom visited by either a supervisor, advisor, or consultant? Circle the number of times that you think best represents the average number of such visits.

0 1 2 3 4 5 6 7 8 9 10 'More than 10'

15. Have you ever asked for help from a supervisor or advisor that required his observing in your classroom?

yes_____ no_____

16. How many times in an average month, would you say that you ask a supervisor, advisor, or helping teacher to talk with you about some school related issue? Circle the number that you think best represents the approximate average.

0 2 4 6 8 10 12 14 16 18 '20 or more'

17. What do you think the administration of your school or program looks for when they observe your classroom? Please circle the number beside each item that best represents how important you think that criterion is to the administration for the judgments they make about your teaching.

	Very Important	Important	Somewhat Important	Not at all Important	Not Sur
1. Your ability to maintain an orderly classroom	1	2	3	4	5
2. The enthusiasm the children show in their work	1	2	3	4	5
3. Evidence of children's learning in the classroom	1	2	3	4	5
4. Your following closely a prescribed lesson plan or set of materials	1	2	3	4	5
5. An overall estimate of the competence of your teaching	1	2	3	4	5
6. Improvement in a specific aspect of your teaching	1	2	3	4	5

18. Are you satisfied that the standards used to evaluate your teaching are in fact the proper standards that should be applied to you? Circle the number beneath the description that best represents how you feel about this.

Very Satisfied	Satisfied	Slightly Satisfied	Dissatisfied	Slightly Dissatisfied	Very Dissatisfie
1	2	3	4	5	6

19. IF you feel that the standards used to evaluate your teaching are improper please describe in your own words what other standards you feel should be substituted.

_____

_____

_____

20. In general, how considerate do you feel that the administration of your school or program is towards you? Circle the number below the description that best represents how you feel about this.

The administration is:

Very Considerate	Considerate	Not Considerate	Very Inconsiderate	I'm not sure
1	2	3	4	5

21. Please describe, in your own words, what the major factors or forces are, besides your own ideas and preferences, that influence the events of your classroom.

_____

_____

_____

_____

22. What type of records are kept about your performance as a teacher? Please check each category that applies, and add in the space provided a description of any additional records that are kept.

____ No record

____ General impressions of a supervisor

____ Detailed recording of how you handle children and employ materials

____ Videotaping

____ Other (please specify)_____

____ I dont' know

CCEP Teacher Survey

23. How often, on the average, are records made of your teaching performance? Circle the number beside the description that you think best represents the average.

1 Less than once a year
2 Once a year
3 Twice a year
4 Three times a year
5 Four times a year
6 Once every two months
7 Once a month
8 Once every two weeks
9 Once a week
10 More than once a week

24. What is done with the records that are made of your teaching performance? Please check each category that applies.

The records about my teaching performance are:

____ Shared with me
____ Kept private
____ Made public to teachers and staff
____ Made public to staff and parents
____ Used to suggest improvements to me
____ Used to evaluate and give me a job rating
____ Used to point up deficiencies in my methods
____ Other (please specify)_____

25. When and if you disagree with either the observations or evaluations that a supervisor makes of you, how free do you feel to disagree with him? Circle the number next to the description that best describes how you feel about this.

1 I feel very free to disagree
2 I feel free to disagree, but not very free
3 I don't really feel free to disagree
4 I don't feel free to disagree at all
5 I'm not sure
6 The situation has never arisen

26. Do you have any friends on the staff of your school or program that you see socially outside of school?

yes_____ no_____

27. Below is a list of some common concerns of teachers. Please place, on the line next to each statement, the numbers corresponding to the titles of all of the people in your school you talk to about that concern. Take the numbers for each position from the list given below the concerns.

CONCERNS	THE PEOPLE YOU TALK WITH
1. Feelings about school staff	_____
2. Questions about individual children	_____
3. Problems of individual children and families	_____
4. Methods of improving your teaching	_____
5. Reasons for teaching the way you do	_____
6. Personal feelings about yourself and your job	_____

LIST OF PEOPLE YOU TALK WITH:

1. School principal or program director
2. Helping teacher, advisor, or consultant
3. Other teachers
4. Your classroom aide
5. Other classroom aides
6. Parents of the children in your class

28. Please state briefly, in your own words, what you like best about your teaching position this year.

_____

_____

_____

_____

29. How do good teachers, in your opinion, gauge the effectiveness of their teaching? Which three of the following is the good teacher most likely to rely on as indications?

Good teachers rely most on: (Circle the numbers beside the three most important)

1 The reactions of other teachers who are familiar with their work and their students

2 The opinions expressed by students generally

3 Their general observations of students in light of the teachers conception of what should be learned

4 The assessments made by the principal or the program director

5 The assessments made by a special supervisor or similar person

6 The results of objective examinations and other tests

7 The reactions of students' parents

8 Other criteria (please specify)_____

30. Look over the above list again. What is the number of the item that you think is most important to good teachers in gauging their effectiveness?

1 2 3 4 5 6 7 8

31. Pupils learn many things in elementary school. Please circle the number beside each item that best represents how important you feel each of the following is.

	Very Important	Quite Important	Somewhat Important	Not too Important	Not at all Important
1. Pupils learn reading skills	1	2	3	4	5
2. Pupils learn to set rules for their own behavior	1	2	3	4	5
3. Pupils learn to relate their learning to their personal interests	1	2	3	4	5
4. Pupils learn to listen and follow directions	1	2	3	4	5
5. Pupils learn the facts covered in the curriculum	1	2	3	4	5
6. Pupils learn to be creative in their work	1	2	3	4	5
7. Pupils learn to follow rules that apply to the whole class	1	2	3	4	5

32. Do you prefer to develop materials for use in your classroom or to use the materials of curriculum specialists? Check one of the following.

I prefer:_____to develop materials for my classroom

_____to use the materials of curriculum specialists

_____I have no preference

_____It depends (Please state briefly what it depends on)

_____

_____

_____

33. How many of the parents of the children in your class have you seen in conference during the past four months?

I have seen the parents of_____ children.

34. In general, how friendly do you feel that the parents of the children in your classroom are towards you? Please circle the number beneath the item that best describes how you feel about this.

In general, the parents are:

Very friendly	Friendly	Neutral	Unfriendly	Very unfriendly
1	2	3	4	5

35. In your opinion, how important a contribution to the running of your school or program does the parents' organization make? Circle the number below the item that best describes the parents contribution.

The parents contribution is:

Very Important	Quite Important	Somewhat Important	Not Important	I dont' know
1	2	3	4	5

36. Please describe, in your own words, the specific ways (if any) in which the parents of the children in your classroom affect your teaching.

_____

_____

_____

37. In general, how satisfied would you say you are with the relations between yourself and the parents of the children in your classroom? Circle the number beneath the description that best represents how you feel about this

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4	5	6

38. Below are some statements reflecting some common opinions about education. Please circle the number beside each statement that best represents the extent of your agreement or disagreement with that statement.

	Strongly Agree	Mildly Agree	Mildly Disagree	Strongly Disagree	Don't Know
1. There is too great an emphasis on keeping order in the classroom	1	2	3	4	5
2. Pupils are motivated to do better work when they feel free to move around the room while the class is in session	1	2	3	4	5
3. A child's teacher has a clearer picture of what the child needs in school than does the parent	1	2	3	4	5
4. A principal should supervise his teachers closely enough to make sure their teaching meets his standards	1	2	3	4	5
5. Children should be given more freedom in the classroom than they normally get	1	2	3	4	5
6. The effective teacher has complete control of the learning situation at all times	1	2	3	4	5
7. Children need and should have more supervision and discipline than they usually get	1	2	3	4	5
8. The responsibility for a child's progress in school rests squarely on the classroom teacher	1	2	3	4	5
9. When given a choice of activity, pupils generally select what is best for them	1	2	3	4	5
10. A firm hand by the teacher promotes emotional security for pupils	1	2	3	4	5
11. Pupils must be kept busy or they soon get into trouble	1	2	3	4	5

39. Overall, considering all aspects of your job as a teacher this year, how satisfied would you say you are?

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4	5	6

40. Do you plan to be teaching in the same school or program next year?

_____ Yes, definitely

_____ Probably

_____ Probably not

_____ Definitely not

_____ Other (please specify)_____

41. What sex are you? Female_____ Male_____

42. What is your marital status?

_____ Single

_____ Married

_____ Separated or Divorced

_____ Other

IF YOU ARE NOT MARRIED, SKIP TO QUESTION 44.

43. What is your spouse's occupation. Please give his/her job title and a brief description of what he/she actually does.

_____

_____

44. What is or was your father's main occupation? Please give his job title and a brief description of what he actually does or did.

_____

_____

45. Are you....

_____ Black

_____ White

_____ Oriental

_____ Puerto Rican

_____ Other (please specify) _____

46. What is the highest degree or certificate you have earned?

_____

47. Did you earn your Bachelor's degree (if you have one) at a school that was primarily a school for education?

yes_____ no_____

48. What are your feelings about the educational value of the Bank St. Bushell Gotkin Becker-Engelmann program in your school?

49. This space is provided for you to make any comments about your school or program that you feel are relevant and have not yet been raised. We would also welcome any comments about this questionnaire.

THANK YOU FOR YOUR HELP. WE WILL TRY TO USE THE RESULTS TO IMPROVE EDUCATION.

1. What grade (or grades) do you teach?_____

2. What is the name of your school?_____

3. For how many years have you been a classroom aide?_____

4. For how many years have you worked in your present job?_____

5. Please describe briefly how you heard about the job you now hold as a classroom aide.

_____

_____

_____

6. Below are some of the ways by which teaching aides learn how to do their jobs. Please circle the number beside each item that best describes how important that item was to you in learning your job.

	Very Important	Somewhat Important	Not at all Important
1. Training sessions before you began work	1	2	3
2. Advice and help from other aides	1	2	3
3. Suggestions from the teacher you work with	1	2	3
4. Remembering how it was when you were a student	1	2	3
5. Watching how children react to things you try	1	2	3
6. Supervision and advice from the administration	1	2	3
7. Regular staff training meetings	1	2	3
8. Other things (please specify below)	1	2	3

_____

_____

7. How many children are in your classroom on an average day?_____

8. How many teachers and aides normally work in your classroom?

_____

9. Please describe below some of the tasks that are mainly your responsibility in the classroom.

_____

_____

_____

10. Think of the teacher(s) and other aides (if any) in the classroom. What are some of the tasks that are mainly their responsibility in the classroom.

_____

_____

_____

_____

11. Below is a list of some of the things that classroom aides often do. Please write in, next to each activity, about how much time you spend doing that on an average day.

ACTIVITY	THE AMOUNT OF TIME YOU SPEND DAILY
1.Teaching the whole class	_____
2.Keeping records	_____
3.Cleaning and arranging the room.	_____
4.Just watching the class	_____
5.Teaching a small group	_____
6.Working with an individual child	_____
7.Talking and planning with the teacher	_____

12. How satisfied are you with the way you and the teacher(s) work together in your classroom? Please circle the number beneath the best description of how satisfied you are with this.

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4	5	6

13. Please describe, in your own words, both the strengths and weaknesses of how teacher(s) and aide(s) work together in your classroom.

_____

_____

_____

_____

14. How often, in an average month, is your teaching observed by an advisor, consultant, or supervisor? Circle the number that you think best represents the average number of times you are observed in a month.

0 1 2 3 4 5 6 7 8 9 '10 or more'

15. Which people in your school are supposed to give you advice and guidance about how to do your job. Please give their job titles, and not their names.

_____

16. Have you ever asked an advisor, consultant, or supervisor for help that required someone's observing your work in the classroom?

Yes_____ No _____

17. How many times, in an average month, would you say that you ask a supervisor, advisor, or consultant to talk with you about some school related issue?

0 2 4 6 8 10 12 14 16 18 '20 or more'

18. How many times, in an average month, would you say that you ask the teacher you work with to discuss with you some school related issue?

0 2 4 6 8 10 12 14 16 18 '20 or more'

19. What do you think the administration of your school or program looks for when they observe your work? Please circle the number beside each item that you think best represents how important that item is to the administration for the judgments they make about your work.

	Very Important	Important	Somewhat Important	Not at all Important	Not Sure
1. Your ability to keep the children orderly	1	2	3	4	5
2. The enthusiasm the children show in their work	1	2	3	4	5
3. Your following closely some prepared materials	1	2	3	4	5
4. Evidence that the children are learning	1	2	3	4	5
5. A general impression of how well you do your job	1	2	3	4	5
6. Improvement in a specific aspect of your work	1	2	3	4	5

20. Do you think the administration is looking for the right things when they observe you work?

Yes_____ No_____

21. IF you think the administration is looking for the wrong things, what different standards do you think should be used?

_____

_____

_____

22. In general, how considerate do you feel that the administration of your school or program is towards you? Circle the number beneath the best description of how you feel about this.

The administration is:

Very Considerate	Considerate	Not considerate	Very Inconsiderate	I'm not sure
1	2	3	4	5

23. Please describe below all the types of records that are kept about your performance as a classroom aide.

_____

_____

_____

24. What is done with the records that are made of your performance as a classroom aide? What use is made of the record(s)?

_____

_____

_____

_____

25. When and if you disagree with either the observations or evaluations that a supervisor makes of you, how free do you feel to disagree with him? Circle the number next to the best description of how you feel about this.

1 I feel very free to disagree

2 I feel free to disagree, but not very free

3 I don't really feel free to disagree

4 I don't feel free to disagree at all

5 I'm not sure

6 The situation has never arisen

26. Do you have any friends on the staff of your school or program that you see socially outside of school?

Yes_____ No_____

27. Below is a list of some common concerns of classroom aides. Please place, on the line next to each statement, the numbers corresponding to the titles of all the people in your school you talk to about that concern.
Take the number for each position from the list given below the concerns.

Concerns:	The people you talk with:
1.Questions about individual children	_____
2.Problems of individual children and families	_____
3.Feelings and opinions about the teacher you work with	_____
4.Methods of improving your teaching	_____
5.Personal feelings about yourself and your job	_____
6.Opinions about Follow Through	_____

List of people you talk with:

1. School principal or program director
2. Helping teacher, advisor, or consultant
3. Other classroom aides
4. The teacher you work with
5. Other teachers
6. Parents of the children in your classroom

28. Please state briefly what you like best about your job as a classroom aide this year.

_____

_____

_____

_____

29. What are your opinions about the educational value of Follow Through?

_____

_____

_____

_____

_____

30. How do good teaching aides, in your opinion, gauge the effectiveness of their work? Which three of the following is the good teaching aide most likely to rely on as indications?

Good teaching aides rely most on: (Circle the numbers beside the three most important

1 The reactions of other teaching aides who are familiar with their work and their students

2 The opinions expressed by students generally

3 Their observations of students in light of their own conception of what should be learned

4 The assessments made by the program or school administration

5 The assessments made by the teacher they work with

6 The results of objective examinations and other tests

7 The reactions of students' parents

8 Other criteria (Please specify_____)

31. Look over the above list again. What is the number of the item that you think is most important to good teaching aides in gauging their effectiveness?

1 2 3 4 5 6 7 8

32. Pupils learn many things in elementary school. Please circle the number beside each item that best represents how important you feel each of the following is.

	Very Important	Quite Important	Somewhat Important	Not too Important	Not at all Important
1.Pupils learn reading skills	1	2	3	4	5
2.Pupils learn to set rules for their own behavior	1	2	3	4	5
3.Pupils learn to relate their learning to their personal interests	1	2	3	4	5
4.Pupils learn to listen and follow directions	1	2	3	4	5
5.Pupils learn the facts covered in the curriculum	1	2	3	4	5
6.Pupils learn to be creative in their work	1	2	3	4	5
7.Pupils learn to follow rules that apply to the whole class	1	2	3	4	5

33. Are you the parent of a child who is or has been a student in your school or program?

(Follow Through aides:Remember that this type of question refers, in your case, to Follow Through)

Yes_____ No_____

34. In general, how friendly do you feel that the parents of the children in your classroom are towards you? Please circle the number beneath the best description of how you feel about this.

In general, the parents are:

Very Friendly	Friendly	Neutral	Unfriendly	Very Unfriendly
1	2	3	4	5

35. Do you see yourself as a community representative in the school? If so, how?

_____

_____

_____

36. In general, how satisfied would you say you are with the relations between yourself and the parents of the children in your classroom? Circle the number beneath the best description of how you feel about this.

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4.	5	6

37. Below are some common opinions about education. Please circle the number beside each statement that best represents the extent of your agreement or disagreement with that statement.

	Strongly Agree	Mildly Agree	Mildly Disagree	Strongly Disagree	Don't Know
1. A child's teacher has a clearer picture of what the child needs in school than does his parent	1	2	3	4	5
2. Children should be given more freedom in the classroom than they normally get	1	2	3	4	5
3. A principal should supervise his teachers closely enough to make sure their teaching meets his standards	1	2	3	4	5
4. The effective teacher has complete control of the learning situation at all times	1	2	3	4	5
5. When given a choice of activity, pupils generally select what is best for them	1	2	3	4	5
6. Pupils must be kept busy or they soon get into trouble	1	2	3	4	5

38. Overall, how satisfied are you with your job as a classroom aide this year?

Very Satisfied	Satisfied	Slightly Satisfied	Slightly Dissatisfied	Dissatisfied	Very Dissatisfied
1	2	3	4	5	6

39. Do you plan to be working in the same school or program next year? Check one.

_____ Yes, definitely

_____ Probably

_____ Probably not

_____ Definitely not

40. What sex are you? Female_____ Male_____

41. What is your marital status?

_____Single

_____Married

_____Separated or divorced

_____ Other

IF YOU ARE NOT MARRIED, SKIP TO QUESTION 43

42. What is your spouse's occupation? Please give his/her job title and a brief description of what he/she actually does.

_____

_____

43. What is or was your father's occupation? Please give his job title and a brief description of what he actually does or did.

_____

_____

44. Are you.....

_____ Black
_____ White
_____Oriental
_____ Puerto Rican
_____ Other (_____)

45. What is the highest grade or educational level you have completed?

_____

46. This space is provided for you to make any comments about your school or program that you feel are relevant and have not yet been raised. We would also welcome any comments about this questionnaire.

THANK YOU FOR YOUR HELP. WE WILL TRY TO USE THE RESULTS TO IMPROVE EDUCATION.

CCEP PARENT SURVEY

1. DATE_____

2. NAME_____ CHILD'S NAME_____

3. What is the name of the child's school?_____

4. How are you related to the child? Are you his mother, (father), foster mother or some other relative?

mother	father	other (specify)
1	2	3 _____

5. How many children do you have ? (Circle the number of children)

1 2 3 4 5 6 7 8 9 10 or more

6. Are you single, married, separated or divorced? (Circle one)

single	married	separated	divorced
1	2	3	4

7. Who lives with you besides the children? (Specify)_____

8. Does the school program your child is in have a special name?

yes_____ no_____

(if yes ask:) What is the name?_____

9. How many adults are usually in (child's) classroom?

1 2 3 4 not sure

10. Can you briefly describe what happens in (child's) classroom to me in your own words?

_____

_____

_____

11. What is the name of (child's) teachers?

Name_____ Don't know_____

(interviewer mark correct) yes_____ no_____

12. In your opinion, is (child) learning more, about the same, or less than other children of his age?

more	about the same	less
1	2	3

13. Does your child like school this year, not care about it much either way or dislike it this year?

very satisfied	satisfied	somewhat dissatisfied
1	2	3

very dissatisfied	not sure
4	5

14. How satisfied are you that (child) is learning the proper type of behavior in school this year?

very satisfied	satisfied	somewhat dissatisfied
1	2	3

very dissatisfied	not sure
4	5

15. Why are you (see above) (very satisfied, satisfied, somewhat dissatisfied, very dissatisfied or not sure?)

_____

_____

_____

_____

16. How helpful is this school program (Follow Through) to child's learning -- would you say it is very helpful, somewhat helpful or not helpful at all?

helpful	somewhat helpful	not helpful at all	don't know
1	2	3	4

17. How many times have you visited the school this year?

1 2 3 4 5 or more None

18. Have you seen (child's) classroom in action?

yes_____ no_____ don't know_____

(If no to #18, skip to #23)

19. Whose idea was it for you to visit the classroom, yours, the teacher's or someone else's?

the teacher's	your own idea	other (specify)
1	2	3_____

20. How many times did you visit the classroom?

1 2 3 4 5 or more don't know_____

21. What made you visit the classroom the second time, the teacher, yourself or another person?

self	teacher	other (specify)
1	2	3 _____

22. What made you go to the (child's) classroom the last time -- yourself, the teacher or another person?

self	teacher	other (specify)
1	2	3 _____

23. Have you ever worked or been a volunteer in the school?

yes - worked	yes - volunteered	no	don't know
1	2	3 (if no got to #25)	4

24. What did you do? (Probe for title)

_____

25. Have you (or your husband) had a private meeting with your child's teacher this year?

yes	no	don't know
1	2	3 (if yes, ask #26)

26. Who suggested the meeting -- the teacher, yourself, or someone else?

teacher	yourself	other (specify)
1	2	3_____

27. Were there any problems of questions left unanswered at the end of the meeting?

yes	no	don't know
1	2	3

(if yes, ask #28)

28. What were the questions or problems left unanswered?

_____

_____

29. Does your child talk about school and what goes on there?

yes	no	don't know
1	2	3

(if yes, ask #30)

30. How often does he talk about school, every day, every week, every month, or other?

every day	every week	every month	other
1	2	3	4

31. Name some things your child likes about school?

_____

_____

_____

32. Name some of the things your child dislikes about school?

_____

_____

_____

33. Does your child bring home any completed schoolwork or homework?

yes	no	don't know
1	2	3

34. Do you help your child with his school work?

yes	no	don't know
1	2	3

35. How often do you help (child) with homework?
Would you say, every day, a few times a week, every week, every month, a few times a month, less often?

every day	a few times a week	every week
1	2	3
few times a month	**every month**	**less often**
4	5	6

36. Does your child ask you to help him with his homework or do you help him on your own?

child asks	parent offers	other
1	2	3

37. Would you say your child has enough schoolwork?

yes	no	don't know
1	2	3

38. Is there a parent organization that works in or with the child's class at school?

yes	no	don't know
1	2	3

39. What is the name of the organization?

_____ (Interviewer check)
(Follow Through) correct yes_____ no_____

40. Have you heard of PAC?

yes	no	don't know
1	2	3

(if yes, ask 41-47)

41. Were you or your husband ever a member of PAC?

yes	no	don't know
1	2	3

42. Are either one of you on the executive committee?

yes	no	don't know
1	2	3

43. Have you (or your husband) ever attended a PAC general meeting?

yes 1 | no 2 | don't know 3

(if yes, ask #44)
(if no, ask #45)

44. Why did you go?

like what was being discussed 1

things get done 2

members work well together 3

gives you a chance to get out of home and be involved in the community 4

other 5

45. Why didn't you go to the PAC meeting?

Too much talking 1 | No action 2 | Problems with members 3

Problems at home (babysitting) 4

46. Does PAC have any scholarship programs for parents?

yes 1 | no 2 | don't know 3

47. Does PAC have, little influence, a lot of influence, or no influence on the school program?

little influence 1

lot of influence 2

no influence 3

other 4

48. Please give an example of the PAC influence mentioned in above question?

_____

_____

_____

49. Does the school program influence (in any way) the way you teach or act with your children at home?

yes	no	don't know
1	2	3

(if yes, ask #50)

50. Please give examples of some of these school influences on the home?

_____

_____

_____

_____

51. Are there any community problems in this area?

yes	no	don't know
1	2	3

52. What are the major problems in this area (community as you see it?

_____

_____

_____

53. Do these problems affect the school?

yes	no	don't know
1	2	3

54. In which way do these problems affect the school?

_____

_____

_____

55. Do these problems affect your home?

yes	no	don't know
1	2	3

(if yes, ask #56)

56. Name how these problems affect your home.

_____

_____

_____

57. What can help solve these problems, parents, teachers, preachers, friends, other?

parent	teachers	preachers	friends
1	2	3	4
combination		other	
5		6	

58. How does your child decide what to do on the days he is not in school? You help him decide, he decides himself, no one decides, other?

Parent help	child	no one	other
1	2	3	4

59. Name if any three most important rules in the home?

_____

_____

_____

60. What does your child have to do to get spanked?

_____

_____

_____

61. If there is company can your child speak out?

only when he wants to	only when he is spoken to
1	2
only when he has permission	other
3	4

62. Does your child watch T.V.?

yes	no	don't know
1	2	3

63. Who decides on the shows he watches, no one, himself, you, others?

no one	himself	parent	Other
1	2	3	4

64. Does your child like or dislike to read?

like	dislike	other
1	2	3

65. Does he read what he wants or what others want him to read?

what he wants	what others want	don't know
1	2	3

66. How much discipline should a child have, lots of discipline, once in a while, no discipline, other?

lots of discipline	once in a while	
1	2	
no discipline	other	
3	4	

67. What are the most important values you teach your child - to obey orders, to think for himself, be curious about things, be neat and clean, have good manners or be considerate of others? Pick 2.

obey orders	think for himself	beccurious about things
1	2	3
be neat & clean	have good manners	be considerate of others
4	5	6

68. Should there be play time in schools?

yes	no	don't know
1	2	3

(if yes, ask 69)

69. Why is playtime important in school?

_____

_____

_____

70. Are subjects such as art, music, dramatics, play subjects or serious subjects?

serious	play	other
1	2	3

71. Do you think your child should be studying (art, music, and dramatics) these subjects?

yes	no	don't know
1	2	3

72. Who can best decide what should be taught in the classroom - the teacher, the principal, the school board, parents or some one else?

teacher	principal	school board	parents
1	2	3	4

other
5

73. If you and the teacher disagreed on something involving your child's future, would you want the child to listen to the teacher, listen to you or make his own decisions?

listen to teacher	listen to parent
1	2
make own decision	**other**
3	4

74. Does your race or nationality have any effect on your child's future?

yes	no	don't know
1	2	3

75. Can your child "make it" even though he is (in this racial or ethnic group?)

yes	no	don't know
1	2	3

76. What do you want your child to do or be when he"grows up"?

_____

_____

_____

77. Do you think he will have a chance to do this?

yes	no	maybe	other
1	2	3	4

78. Do you think your child has some chance, a better chance or no chance for a better life (than you had)?

some chance	a better chance	same chance
1	2	3

no chance	don't know
4	5

79. What are some of the things your child will have to do to reach his goals (good job, etc.)?

_____

_____

_____

80. Do you think your child will finish high school?

yes	no	maybe	don't know
1	2	3	4

81. Do you think your child will go to college?

yes	no	maybe	don't know
1	2	3	4

82. Do you have some, much or no influence on the future of your child?

some	much	no	don't know
1	2	3	4

83. Why do you have some, much or no influence on your child's future?

_____

_____

_____

84. What job would you <u>not</u> want your child to have when he grows up? (Probe for title)

_____

85. Why would you not want your child to do this type of work?

_____

_____

_____

86. Do you have faith in schools?

yes	no	don't know
1	2	3

87. Is your child's program this year, the same, different or better than other school programs?

same	better	much better	worse
1	2	3	4

much worse	can't compare
5	6

88. What do you really like about the school program your child is int this year? List.

_____

_____

_____

89. What do you really dislike about the school program your child is in? List.

_____

_____

_____

90. Are you working?

yes	no
1	2

91. What type of work do you do? (probe for title)

_____

92. Do you receive any type of welfare assistance?

yes	no
1	2

(If husband or husband surrogate lives in house-hold, [illegible] ask 93 - 95)

93. Is your husband working?

yes	no
1	2

94. What type of work does he do? (Probe for title)

_____

95. What was the last grade he (husband or husband surrogate) completed in school?

0	1-4	5	6	7	8	9	10	11	12	some college
a	b	c	d	e	f	g	h	i	j	k

not sure
1

96. What was the last grade you completed in school?

0	1-4	5	6	7	8	9	10	11	12	some college
A	b	c	d	e	f	g	h	i	j	k

not sure
1

97. Would you mind telling me which letter on this card best estimates your total household income for last year 1970?

1. under 1,000
2. 1,000 to 2,999
3. 3,000 to 4,999
4. 5,000 to 7,499
5. 7,500 to 9,999
6. 10,000 or more

1 2 3 4 5 6 (Circle one)